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VOL. II NO. 6

FEBRUARY 1944

INTELLIGENCE BULLETIN



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MILITARY INTELLIGENCE DIVISION
WAR DEPARTMENT . . . WASHINGTON, D. C.

MILITARY INTELLIGENCE DIVISION

War Department

WASHINGTON 25, D. C.,
February 1944.

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PART ONE: JAPAN

NOTES ON JAPANESE JUNGLE DEFENSE

Section I. INTRODUCTION

“Part One: Japan” of this issue of the *Intelligence Bulletin* is devoted almost entirely to information concerning Japanese jungle defenses.¹ Section II deals with tactics, principally those of the squad, platoon, company, and battalion; Section III describes various types of enemy positions; and Section IV, based mainly on Japanese sources, deals with obstacles.

These sections are not intended to be complete studies of the various subjects discussed. They are based on information from men who have been in actual combat, from observers, and from various enemy manuals or treatises.

According to Japanese tradition, defensive operations are “inglorious,” and are to be employed only as temporary measures to halt hostile forces until

¹ Considerable information on Japanese defensive warfare has been presented in previous issues of the *Intelligence Bulletin*. Reference should be made to the following:

Vol. II—No. 4, “Japanese Defense Notes,” pp. 17–20; No. 4, “Defense against Airborne Forces,” pp. 1–6; No. 3, “Some Defense Techniques Used by the Japanese,” pp. 64–65; No. 2, “Defensive Positions” and “Defensive Tactics” (on Attu), pp. 35–38.

Vol. I—No. 12, “Defense Techniques,” pp. 61–64; No. 11, “Defense Positions,” pp. 65–67; No. 10, “Defenses,” pp. 65–69; No. 9, “Defense,” pp. 8–11; No. 6, “Notes on Defense,” pp. 13–15.

counteroffensives can be launched. Defense, to the Japanese, is not static; highly mobile counterattacks are part of their defensive scheme, designed to disrupt the advance of the opposition and eventually to force a withdrawal.

Nevertheless, the Japanese are usually thorough in preparing defense positions, and their defensive tactics—in many respects similar to ours—are well planned. Their positions encountered to date in distant outlying areas generally have been improvised from local material, such as spongy palm-tree logs, tough coral rocks, sand-filled bags, and sand-filled oil or gasoline drums. However, as their communication lines are shortened, and as it becomes easier for them to obtain concrete and steel, the Japanese are expected to present more durable or permanent types of defenses. The use of concrete and steel on a limited scale has already been confirmed on some Central Pacific islands and in Burma.

As a general rule, the Japanese organize their positions for all-around defense. They make effective use of camouflage and concealment, withholding their fire until our troops are within a few feet of them. Some of their positions are selected with few avenues of escape or none at all. Apparently it is intended that the personnel manning these posts shall fight to the death. And this has been true in many instances. On several occasions Japanese soldiers have been given such instructions as "Get 10 of the enemy before any of them gets you."

Although the Japanese is a tenacious defensive fighter and aggressive in the offense, he is by no means a "superman." Under the stress and strain of powerful United Nations offensive power, he has generally shown the same human frailties as soldiers of other powers at war. For example, several instances have been reported in which our artillery fire and bombing reduced numbers of Japanese to a neurotic state.

Section II. TACTICS

1. GENERAL

In the defense as well as in the offense, the Japanese attempt to achieve surprise at the beginning of combat, by means of silence, concealment, deception, snipers, and infiltration tactics. They rely heavily on machine guns, mortars, and grenades for defensive weapons. They stress defense against landing operations, tanks, and aircraft. They frequently use smoke in defense, particularly while changing positions.

According to the Japanese doctrine of defense, mobile troops—including a small number of tanks, when available—are generally employed to cover the occupation of defensive positions. After completing this mission, these troops move back to the flanks of the defended area and protect flanks, reconnoiter, or engage in flanking or enveloping maneuvers.

Japanese forward elements in several instances have allowed a part of a hostile attacking force to pass by their concealed positions, in order to fire on its rear with automatic weapons and grenades. Sometimes the Japanese have let small hostile groups pass by in order to attack large groups which followed.

a. Organization of Terrain

(1) *According to Observers.*¹—As a general rule, the Japanese organize the high or commanding ground, reverse slopes, and both sides of ravines or valleys. However, in jungle terrain where vegetation is thick in low places and comparatively thin in the hills, they have sometimes chosen to defend the low areas.

The types and arrangement of defensive fortifications have varied. However, the Japanese, when under pressure, can be depended upon first to erect temporary positions by quick digging—even though they plan to use them for only a very short period. As long as they are in the area, they continue to dig and improve their positions.

The Japanese stress the importance of alternate or reserve positions, for weapons ranging from light machine guns and rifles to heavy artillery. Machine guns may be moved several times during a single day. Also, dummy positions are frequently used. A recent Japanese memorandum stated:

“From experiments made during fighting in the Munda area, even against the enemy’s tactics of relying upon the omnipotence of fire power, suitably prepared dummy positions and dummy guns were extremely effective in drawing enemy artillery and bombing attacks.”

The types of defense positions range from foxholes, rifle and machine-gun emplacements, and slit trenches,

¹ This term is used here in its broadest sense—to include officers and enlisted men who have engaged in combat against the Japanese.

to large bunkers, pillboxes, dugouts, or shelters, which offer effective resistance to small-arms fire and light artillery shelling. (A description of these is given in Section III.)

These positions are frequently sited in great depth along lines of communication, along coastlines, and around airfields or other strategic areas. The positions are so planned as to cover all approaches. They usually form a series of strong points, connected with communication trenches, which may be tunneled under ground, covered over, or left open. When one or two have been neutralized, the others may often be flanked effectively.

Frequently the main defensive positions are occupied by only a few men; the bulk of the troops are held back in reserve for counterattack. In some instances positions covering a front of 600 yards have been manned by one platoon, armed with light machine guns, rifles, grenade dischargers, and grenades. As these positions were further developed, some were reinforced with detachments from the battalion's machine-gun company, or with antitank weapons.

In Burma, isolated squad or platoon outposts have been found anywhere from 300 to 1,000 yards in advance of the main line of resistance. In some instances they are obviously intended to cover approach routes, and the troops holding them may be expected to fight to the last round and the last man. However,

in thick jungle, smaller outposts have been found; they were often located at the junction of gullies or ravines. If these outposts are discovered, they are usually abandoned. The function of the small outpost in dense jungle appears to be that of a "hideout" from which the elements can either move out as a patrol by night or, by remaining where they are, harass hostile patrols using the gulley or ravine that the position commands.

(2) *According to the Japanese.*²—

Defensive positions normally will be sited in considerable depth. They will consist of a number of centers of resistance, each of which will be able to defend itself in any direction against all combatant arms.

In general, a defended area will consist of outpost positions, advanced defensive positions, and a main line of resistance.³ The latter will be divided into infantry centers of resistance and heavy weapons positions. Behind the main line of resistance, other defense positions will be manned by reserve troops. On parts of the front where the danger of penetration is great, alternate positions may be constructed, at an angle to the front. These will connect positions in the main line of resistance with reserve positions to the rear.

As a general rule, the advanced defensive positions will be not more than 2 miles in front of the main line of resistance. However, if the situation permits, these forces may take up posi-

² Some of the information presented under subparagraph a (2) was obtained from Japanese sources prior to 7 December 1941.

³ Although when translated into U. S. military terms this doctrine seems identical with our own, there probably would be differences between the actual detailed setups.

tions farther forward for the purpose of causing hostile elements to deploy prematurely, or to deploy on terrain poorly suited to launch an offensive.

The main line of resistance will be selected so that both infantry and artillery fire can be concentrated to the front. Also, if possible, the flanks should rest on natural obstacles [Editor's note: Japanese doctrine places strong emphasis on this principle]; the terrain should be difficult for the opposition to observe, and should contain as many natural tank obstacles as possible.

b. Fire Plans

As a rule, the Japanese in concealed defensive positions will withhold their fire until hostile troops are close upon them. They believe that surprise and close-range fire will produce a maximum number of casualties and confusion, and therefore enable them to counterattack.

The Japanese generally site automatic weapons with good all-around fields of fire, and provide them with all-around protection. In thick jungle, they usually cut fire lanes for automatic weapons. These lanes are cut to a height of about 2 feet, and present a tunneled effect. The lanes generally cross each other.

In some theaters—New Georgia, for example—the Japanese usually did not prepare fields of fire. They clung as close to our troops as possible, to avoid our infantry mortar and artillery fire.

Machine guns loom large in Japanese defensive fire plans. Light machine guns are almost always in forward areas, and are fairly well concentrated on the

flanks. As a rule, these guns are manned right up to the last minute and then are moved back quickly. Heavy machine guns are used in the general fire plan. They usually are detached for use in platoon areas, on the flanks, and to cover the main lines of approach.

Use of machine guns for cross fire in defense is a characteristic Japanese practice. The guns are emplaced to cover a predetermined area, and to concentrate an intensive cross fire on any point, in advance of the defensive position, which might afford a route of approach. When emplaced in pillboxes or camouflaged emplacements, the muzzle of the machine gun is usually kept some little distance from the opening and on the inside of the embrasure so that any effects from firing is hidden from attacking troops.

As a rule, Japanese outposts consist of a screen of light machine guns. In several instances, these guns, when driven in, fell back on mutually supporting pillboxes and heavy machine guns, supported by the enemy's mortars and numerous grenade dischargers. One observer states that the dischargers are not highly effective except for direct hits or hits in foxholes.

At night, according to Japanese sources, machine guns are sited to concentrate their fire power to the front of units in defensive positions. The enemy, as far as possible, seeks to enflade the hostile route of approach, or to mass the machine-gun fire on a small area through which it will be necessary for the opposition to pass.

In some cases the Japanese have kept reserve machine-gun crew members hidden in caves or other well-protected positions until they are needed.

c. Use of Snipers

In the jungle, snipers are a definite part of the Japanese system of defense. They usually work in pairs or small groups, and are used for a variety of purposes. Sometimes their main mission is to gather information; in this case, they avoid firing, unless discovered, and remained concealed for long periods to observe movements and dispositions.

Snipers also attack advance units or patrols, frequently from the rear. Sometimes they are left behind in withdrawals to pick off officers. Snipers also may be found covering road blocks or other obstacles, and they usually are found in the neighborhood of pillboxes or other fortifications, above small advanced positions, on the flanks of defense areas, and generally along lines of communication. Reports indicate that the Japanese are still using bird-call signals, whistles, and tappings on logs to communicate with each other.

Snipers by no means confine themselves to trees. They have been found dug in under the roots of certain types of tropical trees, hidden behind trees, rocks, or other natural obstacles, or concealed in thick vegetation. When in trees, they usually tie themselves securely so that they can handle their weapons freely, and not fall out if injured or killed.

In jungle areas, snipers occupying trees for long periods of time have been found to be equipped with mosquito gloves and head nets.

Selection of snipers is believed to be governed in a large measure by their marksmanship qualifications and their camouflage ability. They are usually armed with rifles, and occasionally with light machine guns.

In a recent operation, snipers notched trees to facilitate climbing, and thus gave away their positions.

2. INFANTRY

a. Advance Outposts

In many instances, it appeared to be common Japanese practice to advance a platoon some few hundred yards in front of the battalion main line of resistance. The platoon would take cover, dig in, and usually emplace heavy and light machine guns. Communication was maintained with the rear both by runner and ground telephone lines. The infantry gun was usually located just in rear of the main line of resistance. Extreme advance outposts of four or five men would be sent out from the platoon.

At times, individual platoon attacks would be ordered, and the advance platoon, sometimes supported by a second wave from the rear, would make a limited attack.

There is evidence that, prior to a limited attack, small groups would infiltrate into the hostile area,

but whether or not they were special parties is not known. There was a singular lack of survivors from such groups.

Almost invariably, a platoon sergeant would make a sketch of the terrain in the immediate front of his position, and often, based upon incoming reports from scouts and observers, he would plot the hostile positions. These sketches and maps were skillfully drawn.

b. Company Attack

On one occasion, in New Guinea, an attack was launched by about 400 men, composed of elements of three companies, who advanced in two waves. The first wave, apparently attempting to infiltrate, crawled up a slope in jungle terrain to within about 40 yards of hostile positions. Meanwhile a carefully coordinated attack by Army dive bombers was executed against the ridge. Mortars from the rear wave, which was in contact with battalion headquarters by ground line, also directed fire upon the ridge. As soon as the air attack was completed, the mortar barrage lifted and the first wave closed in hand-to-hand combat—decisively defeated, it withdrew in disorder. United Nations units, while pursuing the fleeing survivors, suffered severe casualties by running into the second wave.

It has been noted that where a battalion is deployed in position along a main line of resistance, individual companies will frequently execute attacks.

This seems also to be true from the frequency with

which counterattacks by companies are ordered when the Japanese are fighting a delaying action with successive withdrawals.

c. Ambushes

Ambushing is a favorite Japanese practice, and is often executed by a combat patrol or sometimes by a specially designated ambush party. The methods used are no different from our own, and the ambush is usually directed against very small patrols moving along a jungle trail.

Information on hostile patrol movements is often obtained from friendly natives, and ambush plans are based on these reports.

d. Use of Fire

In one instance, counterattacking Japanese set fire to dry *Kunai* grass to drive United Nations forces from a ridge spur. Closely following the flames, the enemy troops then occupied the ridge.

e. Machine-gun Positions

On the Sanananda track, Japanese machine-gun positions were carefully located with relation to natural terrain features, camouflage, and cover. Generally, they were in intercommunicating trenches, with from one to three heavy machine guns emplaced in series. The emplacements were dug into fairly firm soil with the gun sited behind a parapet, which usually was constructed of logs and designed to permit fire through an embrasure. In some instances, more com-

mon as machine-gun units retreated to hastily prepared positions, the gun was fired from an uncovered shallow foxhole or natural depression without top cover. Thick banyan-tree roots also served as machine-gun positions.

The prepared heavy machine-gun emplacement was often flanked with sandbag parapets, over which was constructed a skillfully camouflaged cover of sandbags and earth packed on top of poles.

Figure 1 illustrates a semipermanent type of Japanese machine-gun position, which included a strongly constructed pillbox with four communication trenches

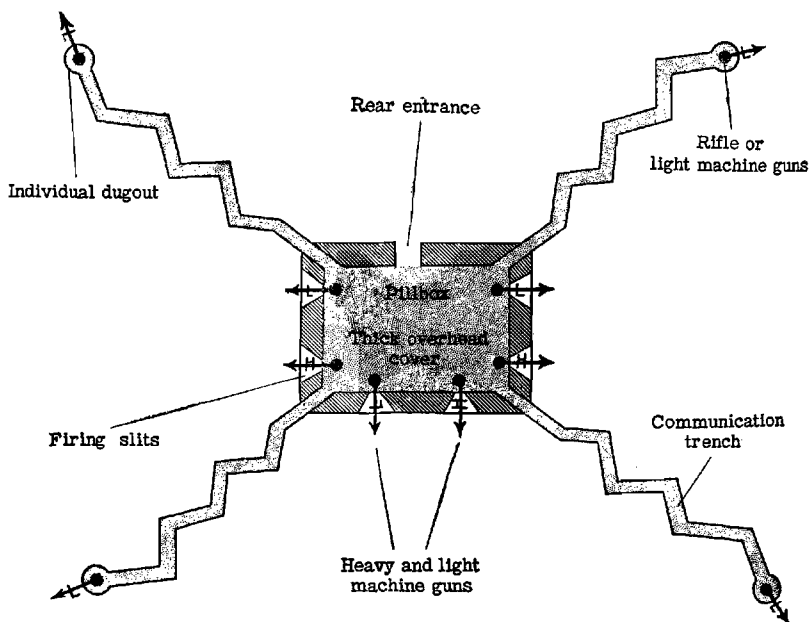


Figure 1.—Japanese Machine-gun Position.

leading out to four small “protecting” dugouts. These were large enough for one or two men, usually light machine gunners.

In New Guinea, the typical heavy machine-gun position had a predetermined field of fire with a fire lane cut through the jungle. These lanes were carefully prepared; small trees and brush were not disturbed. Often each heavy machine gun was flanked slightly to its rear by a light machine gun in a shallow pit or trench. The light machine guns were emplaced to cover the sides of the fire lane, and sometimes had fire lanes of their own. They were usually fixed to fire with a maximum elevation of about 3 feet above the ground.

On several occasions, as additional protection, and probably with the additional function of observers, individual snipers were placed about 25 feet high in trees in a semicircle behind the machine-gun position.

In fixed defenses, if the terrain permitted, the Japanese used staggered emplacements to secure concentrated cross fire. This was especially noticeable where high ground caused anything in the nature of a defile. In one area, a series of positions was found with eight guns concentrating cross fire from slight elevations upon an approaching trail.

Experience indicated that, in general, Japanese in the Buna-Sanananda and Mubo-Komiatum areas were not well schooled in the use of indirect machine-gun fire.

The extreme mobility of Japanese machine-gun units, both heavy and light, was notable.

3. AGAINST TANKS ⁴

a. General

The Japanese have used few tanks in jungle fighting to date, and therefore their antitank tactics have not been thoroughly tested. It is known, however, that they possess antitank weapons of modern design, and that in training they have emphasized the use of small groups of men, armed with such weapons as mines, Molotov cocktails, flame throwers, smoke grenades, and hydrocyanic gas grenades, for attacking tanks in close country.

Japanese guns particularly adapted for use against tanks include the Model 1 (1941) 47-mm antitank gun, the Model 94 (1934) 37-mm gun, and the Model 97 (1937) 20-mm antiaircraft-antitank rifle. (See *Intelligence Bulletin*, Vol. II, No. 3, pp. 44-45, for a description of the Model I.)

b. Use of "Tank Fighters"

From information received, there are indications that the Japanese train one squad in each rifle company (sometimes machine-gun and heavy-weapons companies organize smaller detachments) in special

⁴For additional details on Japanese antitank tactics, see the following issues of the *Intelligence Bulletin*:

Vol. II—No. 4, pp. 25-26; No. 2, p. 56.

Vol. I—No. 4, pp. 6-7 and pp. 17-18.

methods of dealing with tanks at close range in jungle country.

Japanese instructions, for “the purpose of establishing the proper actions of a squad leader and his men in making a surprise close-quarter antitank attack,” list the following weapons and equipment for the squad:

3 wooden rods, 3 to 4 yards long.

Several wooden rods, about 4 inches in diameter.

1 extra rope, about 15 yards long.

Several bottles of 2 *GO* capacity [about 3 gills].

4 shovels.

Rifles and light machine guns.

The list of weapons apparently is incomplete. It is known that such squads carry armor-piercing magnetic mines (in fact, they are mentioned below in the same instruction sheet).⁵

The enemy instructions exhort each man of the squad to “move swiftly and fearlessly until you are as close as you can approach and then make a desperate general assault at the proper time—do not strike too early or miss a favorable opportunity. After penetrating into the dead space [area not covered by tank weapons], stick the explosives [armor-piercing mines] on a flat surface of the tank or, if the ground is hard, throw them immediately in front of the tank.”

⁵ See Vol. II, No. 1, pp. 6-8, for a description of Japanese mines and grenades, and their booby-trapping possibilities.

Other sources indicate that these "tank fighters" are trained to use the Model 93 antivehicle mine (commonly called the tape-measure mine), smoke grenades, shelter halves (to cover vision and ventilation slits in tanks), and Molotov cocktails. The gas grenades mentioned in subparagraph "a" are designed for use against a tank's vision slits or ventilation slits.

A Japanese order regarding the defense of beaches instructed each company to organize a close-quarter antitank squad, and to construct antitank obstacles around the company positions for the purpose of putting tanks out of action.

The "tank fighters" may work individually or in pairs. Sometimes more than one pair may attack a tank. They usually crawl when moving to within the dead space of the tank's guns. The next step depends on the weapon used against the tank and the method of attack. Their ways and means include the following:

- (1) One man attacks the tank with a magnetic mine—as previously described;

- (2) One man throws an antivehicle mine about 15 feet in front of the tank. The mine, attached to a long string or cord, is then pulled directly under the tank.

- (3) Several pairs of tank fighters move out under cover and place a number of mines ahead of the tank in such a manner that the tank must move over one of them.

(4) Two men fasten a number of mines, about 1 foot apart, to a 150-foot line. From concealed positions, they draw the chain of mines across the path of the tank as it approaches.

(5) A pair or more of tank fighters throw a shelter half over the tank's turret to blind the crew; or

(6) A pair or more of tank fighters seek to smoke out the tank crew with smoke grenades.

4. AGAINST LANDING OPERATIONS

a. According to Observers

Recent reports from the South and Central Pacific theaters tend to confirm that the Japanese are strengthening beach defenses for decisive action at that point. "The fundamental principle of defense," says an enemy treatise, "is to annihilate the hostile forces at the water's edge."



Figure 2.—Japanese Beach Obstacles (as seen at low tide on Betio).

Pyramid-shaped blocks, made of reinforced concrete and sunk at close intervals in the coral reef off shore, formed part of the Japanese defense setup around more than half of Betio.⁶ (See fig. 2.) The blocks, almost covered at high tide, apparently were designed to obstruct our landing boats. Loosely strung along the reef and on the beaches above the high tide mark was a barrier of a double-apron barbed wire. Antitank mines were dispersed at intervals along the wire barrier. These mines, resembling large kettles without their spouts and roughly twice the size of the U. S. helmet, were also placed at other points on the reef and along the beach, at intervals of about 75 feet. Also found were magnetic antitank mines, and mines resembling 2 dinner plates placed together. These latter were 61½ inches in diameter. Over 200 unused mines were found stored on the island.

Just back of the high-tide mark on Betio, the Japanese constructed a perimeter barrier, made largely of coconut logs, emplacements for various weapons, and antitank ditches.

The defenses in the Munda area were centered around a system of well-concealed, well-constructed pillboxes, dugouts, breastworks, and small gun emplacements scattered along the coast for a considerable distance. Inland, this system extended for 1,800 to 2,000 yards. In addition, "contact" bombs (probably the Japanese Model 93 antivehicle mine) were imbedded around the shore line of Munda Point, to explode upon pressure of about 250 pounds.

⁶ A small island of the Tarawa group.

b. According to Japanese Sources

Recent Japanese instructions regarding the defense of a certain beach included the following points:

(1) Construct an antitank ditch about 5 feet deep near the beach positions for the purpose of stopping amphibious tanks.

(2) On terrain hard to defend, cut down coconut trees and use them as obstacles and for concealment.

(3) Erect barbed-wire entanglements in the vicinity of the beach.

(4) Strengthen the forces along the coast at night, and be particularly alert. Each company will be responsible at all times for preventing hostile scouts from infiltrating to the beaches in small boats (such as canoes or rubber boats).

(5) Be sure that each company is equipped with antitank weapons, such as flame throwers, armor-piercing mines [magnetic], and Molotov cocktails. Also maintain a large supply of hand grenades around the beach.

(6) The battalion will complete the construction of reserve positions, clear the terrain for fields of fire, and make other necessary preparations for combat.

A Japanese study “concerning defense against enemy landings” stated that hostile forces must be annihilated on the shore, and that, “therefore the second or third line of defense positions ordinarily will not be established very far to the rear.”

The same study also stated that:

Artillery, machine guns, and so forth must be sited so that they can deliver flanking fire, refraining from frontal fire as much as possible.

Sea observation posts must be maintained under Army and Navy cooperation.

Defenses will be semipermanent in nature.

Obstacles in the water should be laid so that they will be effective at high tide as well as low tide.

Location of obstacles should be determined after considering the terrain from the viewpoint of tactics, but the depth of water, even at low tide, must be such that it would be difficult to walk—the depth must be $5\frac{1}{2}$ to $6\frac{1}{2}$ feet. On a shallow beach, where the difference of low and high tide is great, several rows of obstacles are necessary. . . .

Once hostile forces have penetrated the obstacle line, the mission of the forward unit is to take up delaying action until reinforcements arrive. Therefore it is necessary to successively occupy delaying positions. Upon arrival of reinforcements, the forward unit will intercept the hostile forces, or counterattack.

5. COUNTERATTACK

Under most circumstances the Japanese may be expected to counterattack soon after waging a defensive battle. As a rule, these attacks will be concentrated on the flanks—and the rear of hostile forces, if the enemy is able to reach it.

At night the Japanese consider it essential to launch immediate counterattacks against hostile troops which have penetrated their positions.

Usually the Japanese will hold as large a force as possible in reserve for counterattacks. This reserve, more or less centrally located in most cases, will contain tanks and other mobile armored vehicles if the terrain is suitable for their use. Frequently the reserve is divided into groups of 20 to 50 men, who more or less “swarm” forth to counterattack. In a night counterattack on Betio, Japanese officers, with feathers stuck in their helmets, and brandishing their swords, led their troops forward in typical *Samurai*

manner. Frequently these counterattacking groups include only 8 or 10 men, led by an officer. Their attacks are local in character, and are apt to come before the larger counterattacks materialize. Their charge is often preceded by a shower of grenades.

Japanese counterattacks generally have limited objectives.

Several instances have been reported where the Japanese withdrew part of their forces from bunkers and pillboxes only to attack the positions with mortars, grenade dischargers, and machine guns after assaulting hostile troops reached the positions. This fire, not strong enough to injure Japanese in the pillboxes and bunkers, was intended to disrupt the assault just before it succeeded, and to enable a quick counterattack.

6. AGAINST PARACHUTE TROOPS

Japanese instructions on how to defend an airfield against parachute troops are summarized below. These instructions are largely supplemental to Section I, *Intelligence Bulletin*, Volume II, No. 4, "Defense against Airborne Forces."

Immediately on striking the ground, the paratroopers will be jolted and momentarily will not be free to go into action. At this time rush forward and shoot or bayonet them. Do not concentrate entirely upon one man; search elsewhere for other members of the hostile forces.

Several waves of paratroopers may follow successively, so be alert and prepared with the proper security measures. Attack savagely.

Machine guns firing at parachutists will empty five bursts of fixed fire and then resight for the next burst.

Commandeer, burn, or destroy parachuted weapons, equipment, and ammunition.

Shoot down any hostile planes flying low. All machine guns will open with full automatic fire.

Construct four pillboxes to cover positions for the troops on the airfield, on the adjacent terrain, and for reserves and observers. Utilize four firing positions in conjunction with the tanks. Allow no dead areas [areas not covered by fire] when constructing positions.

Guard against shooting friendly troops. They must be easily recognizable.

7. AGAINST AIRCRAFT

The Japanese have used a wide variety of geometric patterns to date in laying out their antiaircraft batteries. These have included the arc, the triangle, the trapezoid (somewhat rectangular), and the straight line. Which of these patterns will be used in a given area depends largely on the nature of the terrain and the use which will be made of the guns. If the latter are to be employed for coastal defense as well as for antiaircraft purposes, they must be arranged in an arc, a straight line, or in a low triangle so that there will be no interference in firing between the individual guns.

Especially when subjected to heavy bombings, the Japanese shift their guns to alternate positions. Sometimes the alternate positions, hastily selected and improvised, afford little protection except for such camouflage as trees and nets.

The types and sizes of weapons utilized in anti-aircraft roles range from the 6.5-mm light machine gun to the 120-mm dual-purpose Navy gun. In some areas, the major weapon has been the Model 88 75-mm Army antiaircraft gun.

One observer states that the 6.5-mm machine gun, when emplaced in the vicinity of larger gun batteries or airfields, should be considered as an antiaircraft weapon. The Japanese 7.7-mm heavy machine gun has a special antiaircraft mount.

Other weapons encountered, or expected to be encountered, on a large scale include the 13-mm antiaircraft gun and the 20-mm dual-purpose gun (already mentioned). Captured weapons are also used for anti-aircraft purposes.

Most Japanese heavy antiaircraft batteries are now believed to consist of six guns, whereas in the past many of them included only three or four guns. It is also believed that the guns in most cases are now being arranged in an arc pattern, with the bow of the arc facing the direction from which hostile elements are expected to attack.

Light and medium antiaircraft guns have been found, and may be expected to be found, in a variety of patterns. They usually consist of four to eight guns per battery. The light or mediums, generally always located near the heavies, are designed primarily for use against low-flying or strafing planes (see fig. 14).

Section III. POSITIONS

1. GENERAL

Japanese defense structures in jungle warfare have not followed a set pattern to date, but have been made to conform as nearly as possible to the surrounding terrain and to meet the immediate tactical requirements. With some exceptions, these structures have been relatively flat, extending 3 to 5 feet above the ground level, or irregularly shaped positions built around the bases of trees.

A Japanese manual on field fortifications states that "it is most important not to adhere blindly to set forms in construction work, but to adapt such work to fit the tactical situation."

A Japanese commander in the South Pacific gave the following instructions regarding defense positions:

Even the smallest unit will prepare deeply entrenched and strong positions against the expected attack. Make your positions as resistant as possible to bombing and also to land-based artillery.

With regard to our artillery and heavy weapons, suitable positions must be selected so that we can obtain a wide arc of fire. Reserve positions must be established, and special attention should be paid to observation posts.

In the jungle, positions must be constructed so that fire covers every direction.

When forced to take up an active defense, the Japanese apparently follow the theory that construction of defensive positions involves a continual process of development. First, the positions merely constitute a series of foxholes; subsequently, if time and circumstances permit, they are linked together to form a coordinated defense system. The third stage involves construction of strong points, or the bunker and pillbox types of earthwork and log positions.

Japanese positions have included bunkers, pillboxes, dugouts, shelters, blockhouses, rifle and machine-gun emplacements, foxholes, trenches, and antiaircraft emplacements and revetments. The terms “bunker,” “pillbox,” and “dugout” have been used fairly loosely in various reports, and it is sometimes difficult to do more than roughly differentiate between them.

Usually the Japanese positions are extremely well sited for cross fire by automatic weapons and for all-around defense; the structures are well camouflaged and frequently are connected to each other by tunnels or trenches. Bunkers and pillboxes are frequently protected on each side by rifle emplacements connected to the structures by a shallow crawl trench. The structures also generally contain sufficient food and ammunition to last for a long time. In some areas bunkers and pillboxes were spaced about 5 yards apart in a fairly straight line, with a second line of positions covering the gaps and a third line behind the second.

As a general rule, the Japanese have utilized the best materials available locally in constructing their

bunkers, pillboxes, dugouts, and shelters. These were primarily coconut logs—or logs of other resilient and tough trees of the tropics—sand or dirt, hardened mud, and grass or other camouflage material. Occasionally oil or gasoline drums filled with sand were used as walls or supports for the structures.

Not all the bunkers or pillboxes have had fire slits, and few have had enough to accommodate the number of men the structures were capable of holding. At least in the early stages of Japanese defensive fighting in the South Pacific, most of these bunkers and pillboxes were used primarily as protective shelters against our artillery, mortar, and bombing attacks.

2. BUNKERS

Loosely speaking, bunkers may be said to differ from pillboxes by their size, shape, and shallow foundations. Usually they have been found on a large scale only in those areas where high-water levels preclude the digging of deep trenches, and in more or less open terrain (for example, in coconut groves and on the edges of airfields).

Figure 3 is an illustration of a typical bunker, which is oblong in shape. The finished interior of bunkers varies from 4 to 6 feet in height, 6 to 10 feet in width, and 12 to 30 feet in length. The larger bunkers are sometimes found with two bays, or compartments, which are separated by a large solid block of earth. Each bunker has one or more narrow firing slits (see fig. 3), which are difficult to hit except at close ranges.

The slits are covered by some form of camouflage when not in use.

In the Buna-Gona area, the bunkers and pillboxes (the latter have also been referred to as small bunkers) were built along the same general lines. With a shallow trench as a foundation, log columns and beams were erected, log revetment walls were constructed, and a ceiling was then made of several layers of logs, which were laid laterally to the trench. With the completion of this basic superstructure, the revetment walls were reinforced by such materials as sheets of iron, oil drums filled with sand, ammunition boxes filled with sand, and additional piles of logs. Lastly, the outside was covered with dirt, rocks, coconuts, and short pieces of logs. For camouflage, the surface was planted with fast-growing vegetation.



Figure 3.—Typical Japanese Bunker.

Different types of entrances were used. Some had direct openings from fire trenches, while others had tunnels from the rear. With very few exceptions, all openings were constructed in such a way that the explosion of a grenade inside the opening would not injure personnel inside the bunker (see fig. 9).

A few bunkers were used to shelter accompanying weapons such as antitank guns. These bunkers usually had large direct openings.

3. PILLBOXES

Usually Japanese pillboxes are constructed over, or near, dugouts, to which the enemy can flee for protection while being shelled or bombed. Some have been described as having front and rear compartments—the front part for firing and the rear for protection, storage of supplies, and rest or sleep. Some of the dugouts are 10 feet deep or more.

Figure 4 is a front view of a typical pillbox. Note the narrow firing slit, cut at an angle to permit a wide field of fire, and the iron fasteners. Figure 5 shows how the inside of a large pillbox or shelter is usually constructed.

a. Buna Area

In the Buna area some of the pillboxes were made as follows:

Sand-filled oil or gasoline drums were placed at intervals in front of the trenches—enough interval was left to permit firing by automatic weapons and rifles. Then heavy palm logs were piled 3 to 5 feet in front

of the drums, in a way so that they did not block the loopholes for firing. The structure was then covered

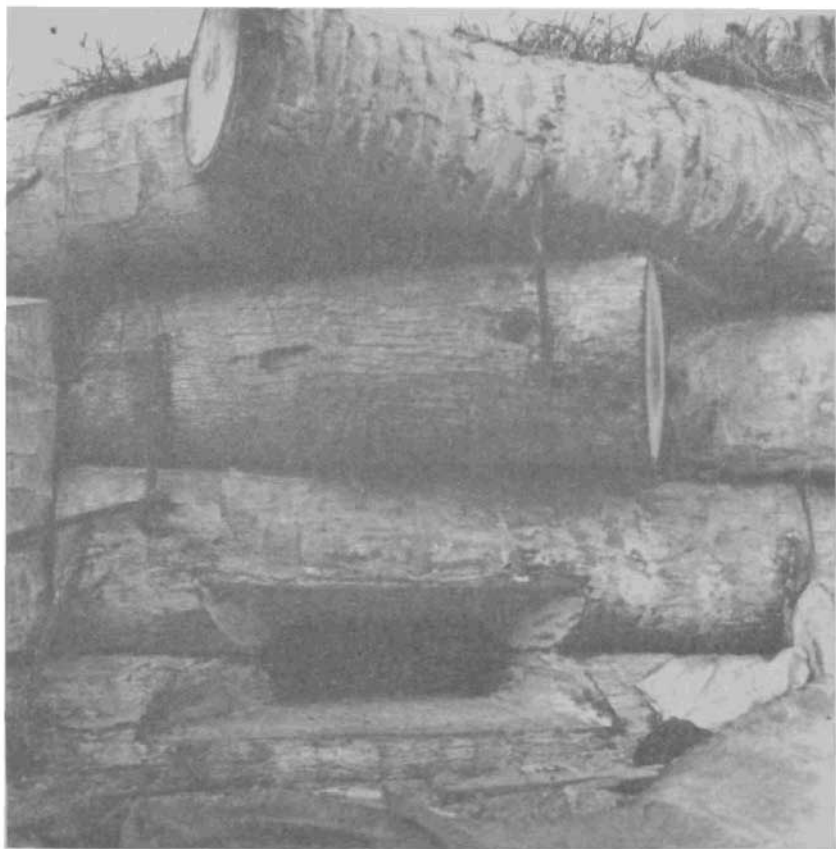


Figure 4.—Front View of Typical Japanese Pillbox (Betio).

with sod and otherwise camouflaged by shrubs and saplings, which were implanted in a realistic manner.

Figure 6 shows a typical pillbox which served as a machine-gun position in the Buna area.



Figure 5.—Inside View of Japanese Pillbox or Shelter.

b. New Georgia

Many of the pillboxes on New Georgia consisted of two decks, which permitted personnel to drop through a connecting door during heavy shelling. All were described as mutually supporting and very well concealed. The pillboxes usually housed heavy weapons, while communication trenches leading out on the flanks generally concealed light machine guns.

Coral rock, tougher than ordinary rock because it is more resilient and much harder to shatter, formed part of the protective covering on many of the New Georgia pillboxes (see fig. 7). They were used in conjunction



Figure 6.—Japanese Pillbox (New Guinea).



Figure 7.—Japanese Pillbox (New Georgia).

with coconut logs, earth, and miscellaneous materials at hand. A large number of the pillbox tops had as many as four layers of coconut logs. These were topped with dirt and coral rock. Ferns and growing shrubs were planted in the chinks to round out a well-camouflaged appearance.

c. Betio

Pillboxes—along with blockhouses, open and covered trenches, individual rifle emplacements, and open retrenchments—formed the main defensive system on Betio. They were situated within 100 feet of the high tide mark.

The pillboxes were constructed mainly of reinforced concrete (several of these were 16 inches thick), coconut palm logs, and sand. Hexagonal (six-sided) steel pillboxes, roughly in pyramid shape, were found on all the beaches (see fig. 8). Apparently they had recently been installed, and were designed to be reinforced with concrete (concrete had already been placed around two of them). They had not been camouflaged, and were badly damaged since most of them had not been reinforced by sandbags or coconut logs.

These pillboxes, apparently prefabricated, are designed to serve as command and observation posts. They have double walls, between which sand and other material is placed for added protection. Apparently most of the beach-defense guns on Betio were emplaced in dugouts with overhead protection. Many of the dugouts were made of reinforced concrete.



Figure 8.—Japanese Steel Pillbox (Betio).

Ammunition and supply dumps were scattered about the island in bomb-proof dugouts.

d. Burma

In general, the Japanese pillboxes in the jungle country of Burma were found to be similar to those in the South Pacific. One report described pillboxes near beaches as consisting of a roughly circular mound of earth about 25 feet in diameter and 5 feet high, with a rear entrance which connected to a crawl trench. In front was a firing slit at, or slightly above, ground

level. The slit was about 6 feet long and less than 1 foot wide.

4. DUGOUTS AND SHELTERS

a. According to Observers

Generally speaking, dugouts may be classified as the "hasty" type and the larger, stronger, and more permanent type. The "hasty" type is little more than a shallow excavation (foxhole) covered with a protective

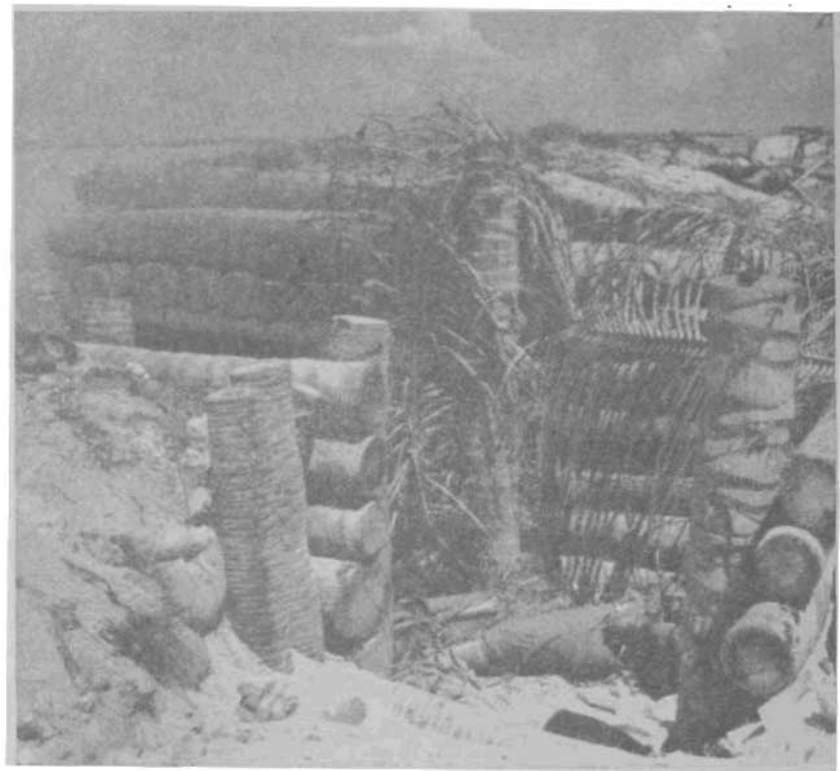


Figure 9.—Typical Japanese Beach Dugout.



Figure 10.—Japanese Dugout (with direct entrance).

layer of logs, dirt, and perhaps other material close at hand. They almost always are well camouflaged. Some of the "hasty" types accommodate three to four men.

Figure 9 is fairly typical of the larger type of dugout. Note the indirect entrance, designed as a protection against grenades. They hold from 6 to 15 men. Their covering is similar to that of bunkers and pillboxes.

Figure 10 illustrates a second type of dugout, which apparently served as a first-aid station on Betio.

Except for extensive excavations, the Japanese shelters are constructed much like the dugouts (see figs. 11 and 12.)

Intelligence reports from Makin Island described Japanese shelters as being about 20 feet long and having varying widths. The tops were made of two to three layers of coconut logs, 10 to 15 inches in diameter, plus a covering of 8 to 10 feet of dirt. The shelters had only one entrance, which was very narrow.

b. According to Enemy Sources

Extracts from a Japanese manual dealing with the construction of shelters and dugouts is presented



Figure 11.—Japanese shelter (Betio).



Figure 12.—Japanese Shelter (Betio).

below. A study of these extracts will show that in general the enemy has followed the “book.”

(1) *Essential Rules*.—Shelters and dugouts are built to protect troops, weapons, and matériel. The profiles of shelters and dugouts differ according to their purposes, but, depending on the time available and the materials at hand, make the degree of strength complete from the start, or strengthen progressively.

Materials needed for construction are generally difficult to obtain; make practical application of local materials.

In building a shelter, besides constructing it to forestall sniping against its loopholes, dig a small ditch in front of the loopholes so that firing will not be obstructed by dirt heaps forming because of enemy attacks. Also provide canvas, blankets, and so forth to deaden noise.

(2) *General Construction*.—Place the lumber for covering on top of the beams and connect them together at various places with wires; makes the joints solid. Furthermore, close up the gaps at points of union and prevent entrance of earth and sand.

Putting a protective layer on a covered shelter will increase its effectiveness. For protective layers, place small stones, timbers, iron, and so forth close together and cover this with a thin layer of earth. Again, in cases of protective covers of two or more layers, generally place a certain amount of earth layer between them.

In order to withstand the concussion of shells bursting in the vicinity, side walls should be covered as much as possible, and, particularly where covering layers are not perfect, the resistance power should be increased by setting timbers in the side walls which face toward the enemy. Also, in building protective layers, extend them on the side which is receiving hostile shelling, and remember to make the protection of the side wall adequate.

Conceal the entrance section thoroughly and make it as strong as possible. Close off the entrances of weaker structures with boards at least 2 inches thick; also, pile sandbags on the outside so as to minimize the blast of shells and bombs. Provide stronger structures with at least two entrances. The distance between the two must be about 6 yards or more so that they cannot be destroyed simultaneously by the same shell or bomb.

In order to strengthen the entrances to shaft-type shelters, make the earth layer over the entrance as heavy as possible on horizontal shafts (level shafts, sloping shafts) and put on a protective layer. Put a covering on vertical shafts.

Make the construction of the interior strong and join timbers firmly with nails, iron clamps, bolts, slots, and so forth.

In constructing light shelters and dugouts, generally build them by excavating the position at the same time that we excavate the communication trench.

The principles of construction differ according to type of structure and degree of strength, but in the light shelter type, after

excavating the trench on the basis of the outline and setting out the upright posts, cover the side walls and then lay the sleepers, having them at least 1 foot from both side walls and at the same height as the upright posts. Bind together the supporting timbers to the top timbers and the covering timbers to each other using wire, and so forth. Then, after laying the covering timbers on the sleepers, pile on earth. For loopholes and peepholes, take advantage of previously prepared retaining boxes, or install them by using the necessary materials.

Where materials for constructing coverings are lacking and the terrain is advantageous, build cave-type shelters or shaft-type dugouts.

To keep down dust in front of the muzzle in heavy gun shelters during firing, spread out wet cloths, mats or grasses, and so forth.

Keep facilities for artillery plotting in shelters so that effective firing can be carried out against an enemy advancing under cover of darkness, mist, or smoke.

In shelters for firearms, especially machine guns, keep in mind the accumulation of carbon monoxide with continuous firing, and get a natural draft by opening the shelter deflectors. For disinfecting gas which has penetrated, prepare chloride of lime, chloride of lime emulsion, neutralizing agents, and if possible, atomizer sprays.

To change the air in dugouts deep below ground, or to renew air, or to purify the air with the dugout closed up, install air vent holes or make an artificial change of air by use of fans. Also hang up a few strips of cloth covered with lime emulsion, and temporarily prevent the accumulation of carbon dioxide gas.

With regard to ammunition, avoid moisture; disperse all small-arms ammunition, usually one box at a time; infantry-gun ammunition, four to six boxes at a time. The distance between ammunition positions differs according to the type and quantity of ammunition stored, but at least 5 yards is required.

5. BLOCKHOUSES

Blockhouse-type fortifications have been found in several areas of the South and Central Pacific.

In New Guinea, the Japanese frequently converted local grass huts into such positions. The huts, which are constructed on stilts so that the floors are raised a few feet from the ground, were not changed; that is, from external appearance. The Japs placed logs and dirt on the floors to provide overhead cover. Then they dug a trench around the huts, just inside the supporting stilts, and built walls with logs and sod to within about 9 inches of the floors. In this manner, they provided a lateral firing slit for all-around fire.

This type of fortification was particularly adaptable to defense of inhabited areas.

6. WEAPON EMPLACEMENTS, FOXHOLES, AND TRENCHES

As a general rule, whenever the Japanese are pinned to the ground—even for short periods—they begin to dig. They have used weapon emplacements—usually of one-man capacity—foxholes, slit trenches, and various other types of trenches, many of them for communication and for protecting pillboxes, dugouts, or gun emplacements. Often small individual dugouts have been constructed into the sides of communication trenches.

For outpost positions in the Burma theater, the Japanese have shown preference for one-man weapon emplacements, spaced about 20 feet from each other, although in many cases two-man emplacements have

been found. Both types usually are linked by communication trenches.

Fences, generally made of wire, have frequently been erected in front of the outpost positions. Alarm wires, with tin cans attached at 5-foot intervals, have often been found strung about ankle high a short distance in front of the fences.

The one-man emplacements have averaged about 3 feet in depth. Most of them were round, and about 3 feet in diameter. Loose dirt was thrown all around.

The two-man emplacements, also about 3 feet deep, were oval-shaped. On hilly terrain, the loose dirt was thrown to the front to build a level parapet.

Communication trenches were about 2 feet deep and 1½ feet wide.

Machine-gun emplacements were arc-shaped. Loose dirt was thrown forward to build up a 6-inch parapet. Gun platforms were constructed on a level with the ground.

In the hills of the Burma jungle, rifle and machine-gun emplacements frequently were constructed on the sides of hills, with dugouts to the rear (see fig. 13). Compare this type with the typical machine-gun emplacement on Attu—*Intelligence Bulletin*, Volume I, No. 11, page 66.

Reports from the South Pacific indicate that Japanese bivouacs usually are protected by all-around defenses, which include weapon slits or foxholes of a standard type with overhead cover and connected by shallow communication trenches.

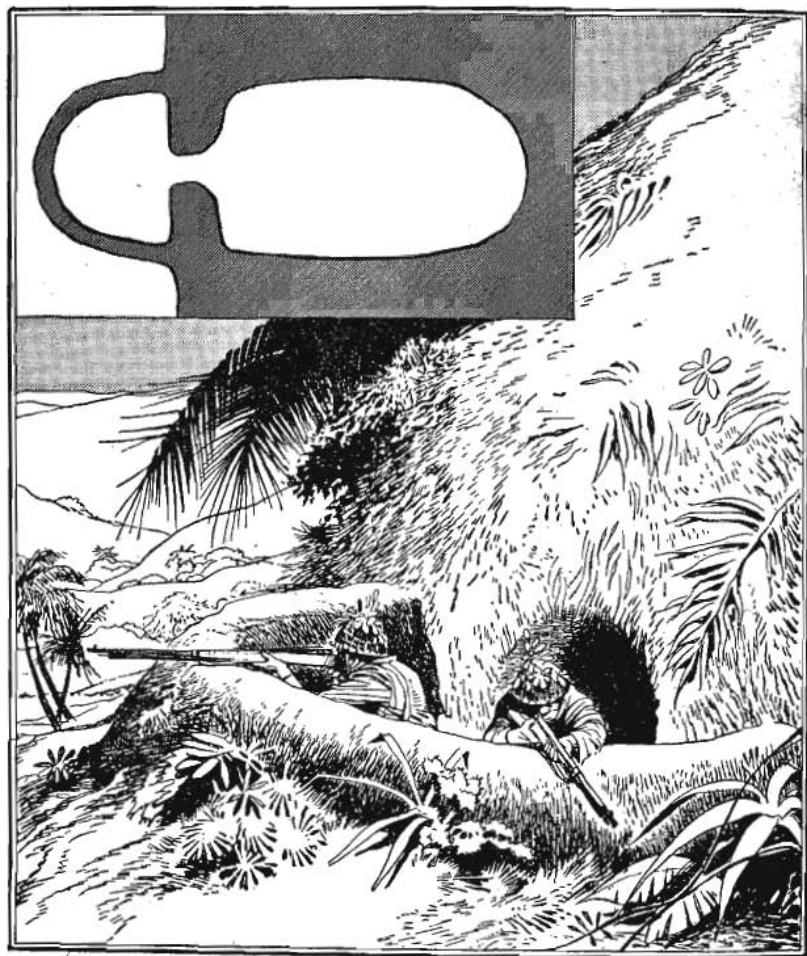


Figure 13.—Japanese Rifle or Machine-gun Emplacement (Burma).

7. ANTI-AIRCRAFT POSITIONS

a. General

Military observers agree that Japanese anti-aircraft positions in the South Pacific are usually excellent. A typical comment is that of a U. S. pilot who says, "The Jap installations have been very well planned. Most of the places I have encountered have been well equipped with heavy and light anti-aircraft guns."'

Figure 14 shows a typical Japanese anti-aircraft position, minus some of the usual camouflage. Note

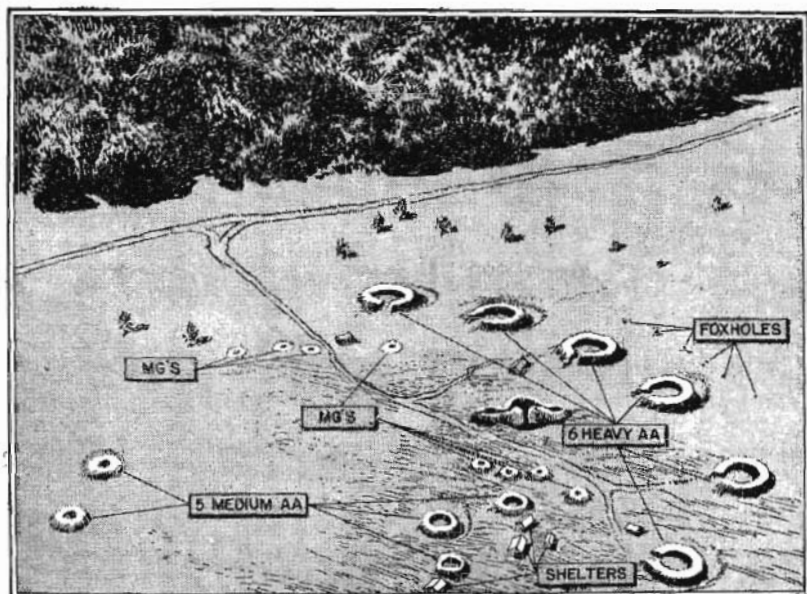


Figure 14.—Typical Japanese AA Position.

the inclusion of medium guns and machine guns in the same general setup with the six heavies. The command post is situated inside the arc formed by the emplacements for the heavies.

b. In the Solomon Islands

Japanese medium and heavy antiaircraft battery positions in the Solomon Islands usually followed one of three patterns: an arc, a triangle, or a rough rectangle.

The arc pattern included three to ten emplacements. The radius of the arc usually varied directly with the number of guns in the pattern. These batteries were often reinforced with a few scattered light antiaircraft positions. The command post of the arc battery was located back of the battery, approximately equidistant from the ends. Gun-crew quarters and ammunition dumps could usually be observed at the edge of the clearings in which the batteries were installed.

The triangular pattern consisted of three guns. The command post was usually located in the center of the position, which in all other respects was similar to the arc pattern.

The rectangular pattern consisted of a four-gun battery. The command post was in the center of the position. Crew quarters, ammunition dumps, and so on were removed from the position, as in the case of the arc pattern.

The revetments that the Japanese build usually are circular and have no entrances. Some with a protected entrance, have been observed and a few with an unprotected gap. These revetments vary in diameter (inside) from 12 to 33 feet. Most of them appear to be slightly countersunk.

At Vila a new type of revetment was observed. This consisted of a ramp leading down into the opening of a covered shelter, which in turn opened into a circular gun revetment. Another revetment was built around the first (see fig. 15).

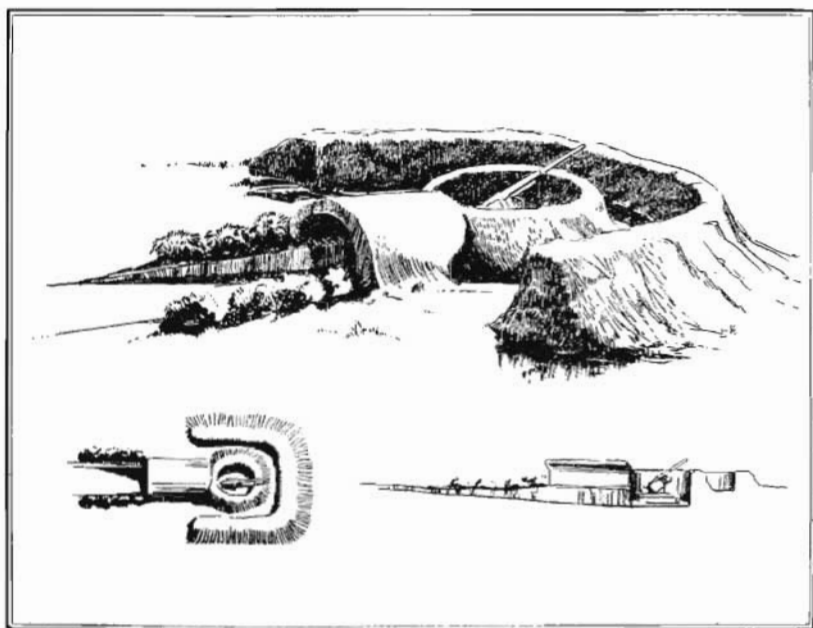


Figure 15.—Japanese Revetment (outer circle not completed).

From a photo-interpretation standpoint, all Japanese heavy automatic antiaircraft positions follow the same general pattern. They vary in diameter from 10 to 12 feet, and in depth from 5 to 6 feet. The sides are usually reinforced with coconut logs, or, if the position has been dug out of coral rock, are banked with earth, sandbags, and coral spoil—all well camouflaged. At Kindu slabs of sod were carefully laid to conceal the dirt embankments.

All Japanese gun positions have this much in common: one or two dugouts built into the sides of the revetments. Usually one is for ammunition, and the other for personnel or supplies. Crew quarters are generally situated underground, near the guns. East of Lambeti there was a circular position in which revetments were connected with a maze of dugouts and underground rooms. Small shaft-like openings, about 3 feet in diameter, provided alternate entrances. In several instances, small ladders were found in these shafts.

At Gurasi several positions were of a novel design: The gun was mounted in a relatively shallow coral revetment, which connected directly with a rectangular structure resembling a pillbox.

Section IV. OBSTACLES

1. INTRODUCTION

The information presented in this section is confined largely to paraphrases taken from translations of various Japanese manuals and treatises. It is intended to serve only as a guide to the nature of obstacles that the enemy may use against our troops in future operations.

The Japanese consider obstacles as means "to obstruct the enemy's advance, and, combined with fire power, to destroy or hinder his movements, or to prevent surprise attacks." Obstacles described, or referred to, by the Japanese include wire entanglements, movable barriers, land mines, abatis, snares, antitank trenches, pits, and obstructions designed to separate infantry troops from tanks.

2. WIRE ENTANGLEMENTS

a. Net Type

Figure 16 is an example of the Japanese net-type wire entanglement. Note that both barbed and smooth wires are used. Except for the lower horizontal line, the Japanese stipulate that the wires not be tight. The enemy also "increases the efficiency"

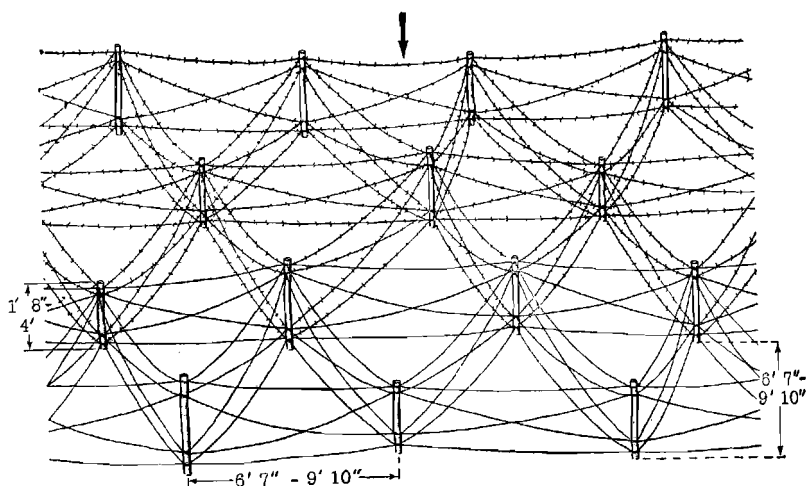


Figure 16.—Japanese Net-type Wire Entanglement.

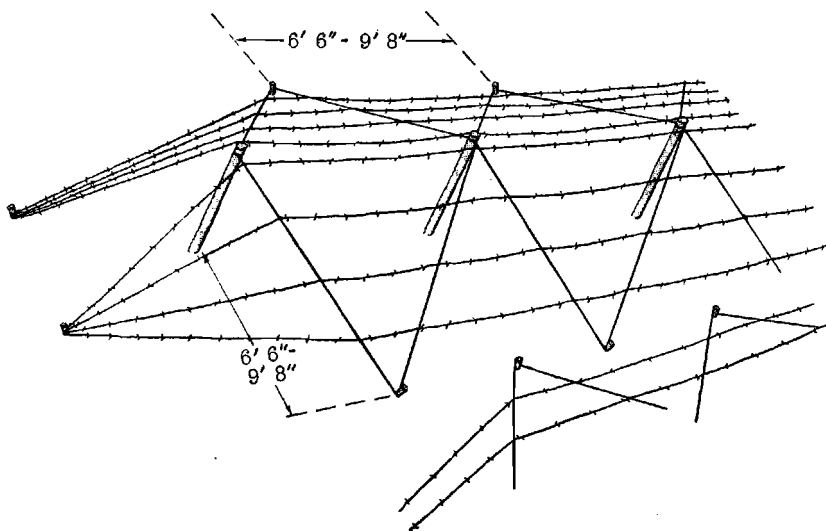


Figure 17.—Japanese Double-apron Type Wire Entanglement.

of the obstacle by stretching thin wires between the main wires to thicken the net.

b. Double-apron Type

This type (found on Betio) is illustrated in figure 17. Sometimes spaces are left between lines of the double-apron type so that movable obstacles may be utilized. Here, again, both barbed and smooth wire are used.

The use of screw pickets instead of wood posts not only increases obstacle efficiency but permits faster construction with less noise.

[In lieu of barbed wire, the Japanese on New Georgia used a prickly native vine to form obstacles around some defensive positions. The vines, interwoven to provide an effective barrier, had to be cut before U. S. troops could advance.]

c. Passageways

Two examples of passageways for Japanese wire entanglements are shown in figure 18.

3. MOVABLE BARRIERS

The Japanese admit that movable obstacles are not very effective, but say that they are easy to transport, to set up, and to conceal. "Therefore," according to an enemy manual, "they are used when an obstacle is needed to surprise opposing forces, when concealment of positions is necessary, when closing up a passage in an obstacle, or where it is difficult to drive posts in rocky or frozen ground."

The Japanese vary the length and height of their movable obstacles, according to the tactical requirements and the convenience of transportation.

“In order to increase the effectiveness of movable obstacles,” the enemy source states, “they are often placed on each other, or are set up so that they connect

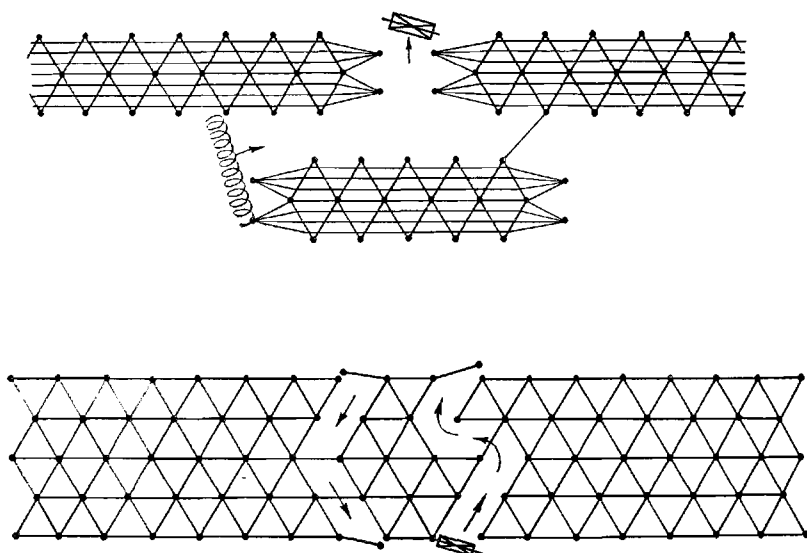


Figure 18.—Two Types of Passageways in Japanese Wire Entanglement.

on either side. In these cases they are connected firmly to each other by stakes, wires, and so forth.”

a. Barbed Type

An example of the barbed type of Japanese movable obstacle is shown in figure 19. Barbed wire and two sizes of smooth wire are used in its construction.

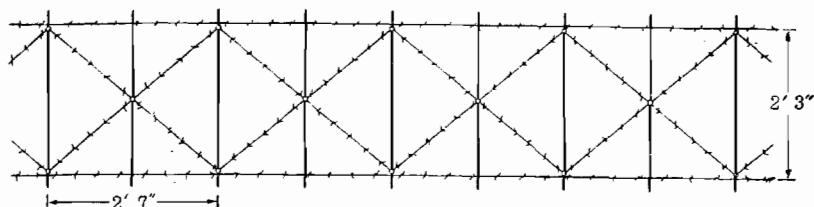


Figure 19.—Japanese Movable Wire Barrier.

b. Cheval-de-frise¹

This type of obstacle, illustrated in figure 20, usually is about 10 feet long and 4 feet high. To facilitate transportation, the Japanese usually construct them so that they can be folded.

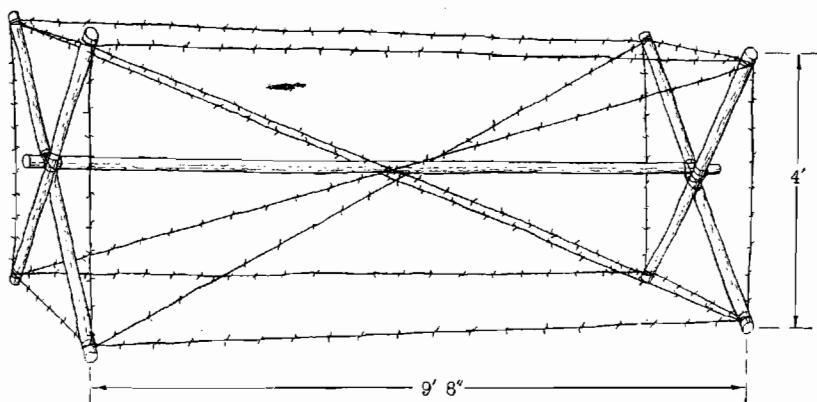


Figure 20.—Japanese Cheval-de-frise.

c. Ribard²

Construction of this cylindrical obstacle is illustrated in figure 21. The diameter of the cylinder is generally

¹ A portable obstacle in the form of a saw horse, having two or more sets of legs or cross pieces; it stands of itself, and is sometimes covered with a network of barbed wire.

² A portable wire entanglement in the form of a cylinder, consisting of circular frames of heavy wire with barbed wire strung upon them. It can be collapsed for carrying and extended for placing.

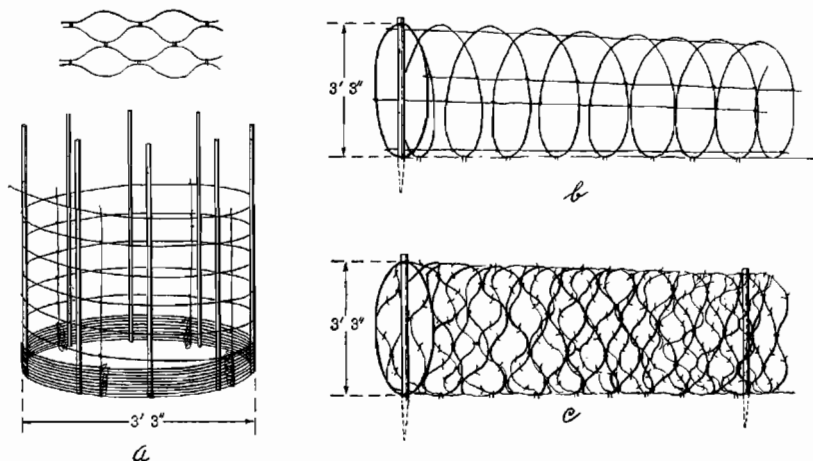


Figure 21.—Japanese Ribard (*a*, principle of construction; *b*, principle of setting up; *c*, principle of folding up).

from 3 to 4 feet. According to Japanese instructions, this obstacle is folded by compressing the ends and tying in several places. It is opened by untying and stretching.

4. OTHER TYPES OF BARRIERS

a. Abatis (see fig. 22) ³

The Japanese recognize that abatis are easy to destroy, but they frequently use them in areas where trees are plentiful. An enemy manual stipulates the use of trunks and branches of heavily branched, broad-leaved trees or bamboo. "Cut away the narrow branches, sharpen the slightly large ones, and point the tips toward the opposing forces," the manual

³ An obstacle consisting of trees felled or placed with their tops to the front. A live abatis is one consisting of saplings bent to the ground but not cut, so that the leaves do not wither.

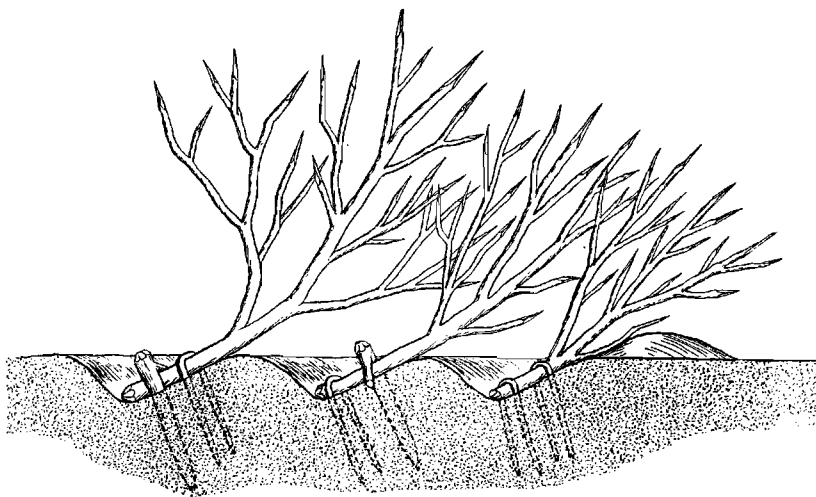


Figure 22.—Japanese Abatis.

states; “arrange them so that a back line of branches covers the branches just in front. The effectiveness of the obstacle can be increased by tying the branches with wire at points where they touch each other.”

The Japanese sometimes construct abatis by felling trees at a height of 2 to 3 feet from the ground; the trees, not completely cut loose from their stumps, are felled in the direction of opposing forces, and their limbs are prepared much in the same manner as described above.

b. Cylindrical Wire Net

This obstacle usually is constructed with five rings and six strands of barbed wire, stretched to connect the rings. Other wiring is used to strengthen the obstacle.

c. Folding Screen

The frames are made separately and then connected (see fig. 23).

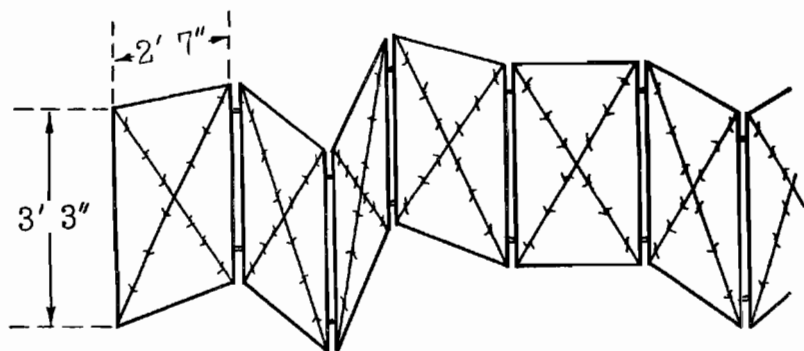


Figure 23.—Japanese Folding-screen Barrier.

d. Wire Snares

(1) *Ring Shape*.—This type of snare (see fig. 24a) is usually about 1 to 2 feet in diameter.

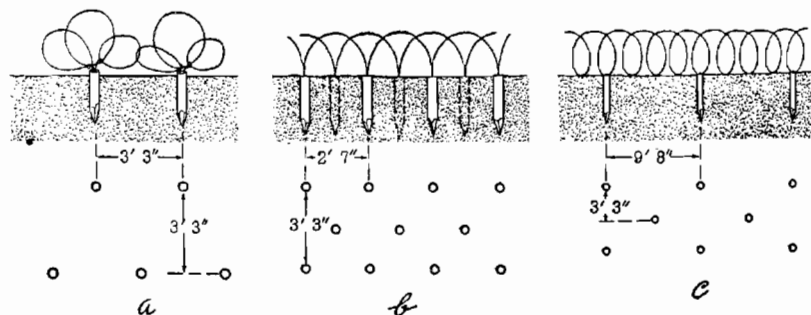


Figure 24.—Japanese Wire Snares (a, ring-shape; b, half-moon shape; c, tangled-wire type).

(2) *Half-moon Shape*.—This type of snare extends a little over a foot from the ground (see fig. 24b). It

consists of overlapping barbed-wire strands which are fastened to stakes in the ground.

(3) *Tangled-wire Type*.—The Japanese construct this type of obstacle either with barbed or smooth wire (see fig. 24c). The wire, secured at intervals to stakes, is looped or tangled in an irregular manner to a height of about 10 inches above the ground.

The Japanese also mention such simple procedures as stretching ropes, cords, vines, and wire between posts of trees.

5. ANTITANK OBSTACLES

According to the Japanese sources, the construction of antitank obstacles must vary according to the type of opposing tanks, the terrain, and other conditions.

a. Ditches and Steps

The construction of Japanese antitank ditches usually depends upon the type of hostile tank anticipated. To halt medium tanks, ditches are constructed with a top width of 10 feet or more and a depth of 6 feet or more. The sides are made “as steep as possible.” To slow down medium tanks, the ditches are constructed at about half the dimensions given above.

Antitank steps, according to a Japanese manual, can be “simply constructed on sloping terrain, and their effectiveness is comparatively great—especially so when we take advantage of steep slopes.

b. Land Mines

“Antitank land mines,” a Japanese manual states, “are simple to handle and can be quickly set in desired positions; however, since they may be destroyed prematurely by gunfire or bombs, or may be cleared away, it is most important to conceal their location from the hostile forces.

“The interval between mines in a minefield varies according to the tactical situation, the type of mines, terrain, and so forth. However, they usually are laid in a fish-scale pattern at intervals of about three paces. They are buried at a depth sufficient to camouflage them.”

c. To Separate Infantry from Tanks

A Japanese manual states that “obstacles for separating infantry from tanks are easy to construct and to conceal. Such obstacles—even when antitank obstacles cannot be built—may be able to frustrate tanks by separating accompanying infantry from them.

“These obstacles (principally snares and the spiral type of wire entanglements) should be set up so that our fire power can be coordinated with their use.”

A tank passing over the spiral type of entanglement depresses the spiral support, which is coiled as a spring. Because of the action of the spring, the spiral support returns to its former position after a tank has crossed over.

d. Other Types

Under this heading, a Japanese manual describes the following:

“(1) *Pits*.—These are dug in localized areas.

“(2) *Felling Large Trees*.—There are times when we can slow down tank movements by the irregular felling of large trees at heights of 3 to 4 feet from the ground. They should not be severed entirely.

“(3) *Wooden Posts*.—Wooden posts sunk into the ground in an irregular pattern can sometimes retard tanks. The posts should be about 1 foot in diameter and about 9 feet high; they should rise about 3 feet above the ground.”

PART TWO: GERMANY¹

Section I. VON ARNIM DISCUSSES JUNIOR LEADERSHIP

I. INTRODUCTION

It is both foolish and dangerous for anyone to go to extremes in appraising the junior officers of the German Army. To say that German junior leadership is "weak" would be untrue. But to say that it has demonstrated "instances of weakness" in the past is an entirely valid statement. The German Army attempts to correct such faults as soon as they become apparent. In Tunisia, for example, General von Arnim issued to his commanders a constructive order, which discloses a number of errors that they had been making. He prefaced the order with this comment: "In recent operations, apart from the outstanding conduct of certain officers and men, many self-evident principles of tactics and command seem to have been discarded."

In considering the following extracts from the order, the reader will have no trouble in detecting the faults that General von Arnim was determined to overcome.

¹ The caption for figure 9 on p. 56 of *Intelligence Bulletin*, Vol. II, No. 1, should read "Pz. Kw. 3 with 50-mm gun (Kw. K. 39)."

It is reasonable to suppose that the enemy may again display, in other combat areas, various tendencies indicated here. In any event, it is an advantage to know the opinion of a high-ranking German officer regarding the deficiencies apparent within his command.

2. "EXPLAIN THE PLAN"

a. Before an action every unit commander [in the Fifth Panzer Army] must try to give his men the broad picture so far as it affects the missions of the company and the battalion.

b. Unless the soldier has been informed about the plan, he will fight without enthusiasm or understanding, and will become confused in crises.

c. Unless a patrol knows the broad picture, it will be unable to make the most of what it observes within the enemy lines.

d. Unless signalmen and runners know the broad picture, they cannot maintain their contacts properly.

e. During battle every commander must try to keep his subordinate commanders informed regarding the progress of the fighting. If it is impossible for him to give the broad picture, he must at least inform them regarding the progress of his own unit. In turn, subordinate commanders will pass this information along to their men.

3. TACTICS

a. When a decision must be achieved, it is impossible to be too strong. That is, at the point where a decision is to be brought about, one's forces must be concentrated—but not bunched.

b. Flank protection by small detachments a considerable distance away is worthless; the opposition can destroy these detachments one at a time. Instead, flank protection should be

afforded by close flanking columns—echeloned toward the rear, if necessary. A battalion and a half may well attack on a 2,000-yard front, but never on a 7,000-yard front. Attacks in divergent directions are employed only for feints.

c. A concentration must never be permitted within a sector dominated by the opposition. Concentrations must not only be covered, but protected from the air.

d. Unless reconnaissance has been extensive and thorough, there is always a chance that one will unexpectedly run into hostile fire. Reconnaissance should be conducted by sectors, and from ridge to ridge (including reconnaissance for future observation posts), in exactly the same way in which the attack is divided into bounds so that support weapons can be brought forward in time.

e. Before every action an assault detachment precedes the rest of the company, which is deployed in depth. Support weapons should be well forward, to give prompt assistance. The forward observers for support weapons and artillery must be very far forward; an infantry detachment must be assigned to protect them against surprise attacks.

(f) As soon as a position has been taken, it must immediately be consolidated against counterattacks (including air attack) by means of:

(1) Reconnaissance of the position to which the hostile force has withdrawn and reconnaissance of the nearest hostile force on our own [German] axis of advance.

(2) Readiness of machine guns, with sentries performing half-hour tours, especially on the flanks.

(3) Dispersion of the troops taking part in the consolidation (so as not to provide the opposition with targets for artillery or air attack); rapid replacement of ammunition, and short breaks for messing, maintaining equipment, and so on.

g. It is a matter of honor for one arm to help another—for example, infantry covering disabled tanks and giving protection while brief recovery jobs are being undertaken. At night,

tanks are blind, and must have infantry protection against tank-hunting detachments (often the crew alone will not be adequate for this). Artillery pieces and mortars in exposed positions must also be protected by infantry.

h. Ground cooperation with dive bombers has always worked well in cases where tracer fire or guiding smoke has been used lavishly.

4. ORDERS AND REPORTS

a. Too little use has been made of brief warning orders, which prepare our troops, make reconnaissance of approach routes possible, and sometimes speed up the departure by hours. It must be remembered that preparations for the attack and the defense, especially when the fighting is to take place in mountainous terrain, call for different equipment.

b. Written orders will be given only above regimental level. On and below this level, verbal orders will be given—and in the prescribed sequence so that salient points can be written down.

c. It is impossible to be of assistance to subordinate commanders unless adequate reports from the front line have been received. Reports received in the past have hardly ever mentioned the exact time when events occurred or when things were seen. Often a place has not been identified, except by a system of private map references unknown to others. Intelligence about the opposition is almost always omitted—exact details about the hostile force, its positions, and its movements. In instances in which a United Nations force has attempted an outflanking move, reports have failed to mention which of our flanks was involved and in which direction the hostile force was moving. How can the higher commander help his subordinates under such circumstances?

5. INTERCOMMUNICATION

a. The nearer the front, the shorter the communication routes must be.

b. A battalion headquarters must be close enough to the rear of its companies to permit a runner from a company commander to reach it in not more than 10 minutes. A regimental headquarters must be no more than 2,000 yards to the rear of its battalion headquarters—if possible, on a level with them and in a position from which it can observe the battlefield.

c. It is best for a battalion headquarters and the regimental headquarters to move forward along a main field telephone line, which has a direct wire to the company command post at the decisive point. In any event, the company commander will be at the decisive point for intercommunication within the battalion and the regiment. The units flanking him to the right and left will be maintaining contact with him, anyway, as a matter of course.

d. Every effort must be made to rush important reports to the rear. This Army cannot be of assistance if a crisis is not reported until 24 hours after it has occurred!

e. In forwarding reports about purely local matters (weather, casualties, exhaustion of personnel, hostile artillery fire, and so on), all commanders must refrain from wording them too pessimistically or so coloring them as to influence the higher command in a certain direction. A course which appears favorable for one sector may prove disastrous for the situation as a whole.

Section II. CAMOUFLAGE IN SICILY

1. GENERAL

An analysis of the camouflage measures employed by the enemy during the Sicilian campaign indicates that the Germans are still improving their methods, and that they can readily adapt basic principles to new terrain conditions. In Sicily they made good use of all available cover. The fieldcraft and camouflage undertaken by the individual German soldier were particularly good. Track discipline was weak, however—perhaps because vehicles so frequently were required to move at night.

2. PILLBOXES

The Germans paid special attention to the camouflage of pillboxes designed to repel landing forces. Every effort had been made to blend these pillboxes, most of which were of concrete, with the general terrain patterns. The fact that there were so many small houses, huts, and stone walls on the island made this work simpler for the Germans. It was a relatively easy task to construct pillboxes resembling existing structures.

In the Pachino area there were several instances of pillboxes covered with thatch to look like huts. A

pillbox overlooking a road junction between Pachino and Rosolini was actually a small house which had been reinforced with concrete and which had weapon slits just above the level of the ground. In the Palazzolo area a number of pillboxes had been constructed in the vicinity of limestone outcroppings; as a result, the pillboxes blended fairly well with their surroundings. These pillboxes were roofed with straw and had straw "blinds" over the weapon slits. Near Rosolini the Germans had constructed a pillbox beside a wall, and had painted on the pillbox a continuation of the stone pattern of the wall.

However, the locations of many pillboxes were revealed by the careless laying of wire obstacles. Instead of being blended with the ground pattern, wire often was stretched haphazardly across fields, thereby permitting air photographers to identify positions which otherwise had been well camouflaged.

A number of enemy pillboxes were never used.

3. GUN POSITIONS

Of the enemy gun positions selected for study, half were covered with grass-garnished nets of Italian make. The other half lacked overhead concealment, but the guns themselves were covered with branches and other natural garnish. In general, track discipline around gun positions was poor. Occasionally, however, the Germans constructed gun positions which were excellent in every respect. A single gun position

near Palazzolo was unusually well planned. Here the pit was dug out of an embankment at the side of a road, and a low overhead cover of nets garnished with boughs and grass gave the location an entirely natural appearance. Near Grammichele an antitank gun had been given an imaginative, yet very simple, camouflage treatment. The gun was sited in a field where cornstalks had recently been cut and stacked. The Germans constructed a similar stack around the shield of their gun.

4. SNIPER EQUIPMENT

At least two different types of camouflaged cloth jackets were worn by German snipers in Sicily. One type, with which a matching helmet cover was issued, had a disruptive pattern with a green background on one side, and a pattern with a brown background on the other. The second type was an ordinary twill jacket, dyed a mottled green and brown. Both types blended well with local terrain colors, but had the weakness of revealing characteristic outlines, inasmuch as they fitted the body closely.

Section III. CONCENTRATING THE FIRE OF 81-MM MORTARS

1. INTRODUCTION

Many U. S. junior officers and enlisted men who have fought the Germans in Tunisia and Italy have emphasized the necessity for a wider and better understanding of how the Germans use their infantry mortars against United Nations forces. For this reason the following enemy discussion of concentration of fire by German 81-mm mortars should be of special interest to *Intelligence Bulletin* readers.

In connection with this article, reference should be made to "German Infantry Weapons" (M. I. D. *Special Series*, No. 14) which contains descriptions of the German 50-mm and 81-mm¹ mortars and details about their operation.

2. ENEMY INSTRUCTIONS

a. General

The fire of one or two [81-mm] mortar sections may be concentrated to achieve greater effectiveness against suitable targets. The fire unit is the section, even when two sections or a platoon are engaged. Throughout an action, platoon and section commanders must concentrate fire on the most important targets. When sev-

¹ Although this is an 8.1-cm mortar, it is called an 8-cm by the Germans.

eral appear at the same time, it may be more effective to engage them one by one, and with concentrated fire. Concentration of fire can be very effective in defense against such targets as observation posts, machine-gun nests, and assembly areas.

Good intercommunication is essential for rapid concentration of fire. For a single section, this intercommunication can usually be accomplished by word of mouth; for two sections or a platoon, a telephone line will be necessary.

Targets must be indicated as quickly as possible. The methods employed are:

a. Indication on the ground. (This is possible only for single sections, or if sections are close together.)

b. Fire by "voice control" section. (The platoon commander establishes his observation post near a section which fires on the indicated target with a single mortar.)

c. Use of reference points.

d. Use of a plan with numbered targets.

Ranging is normally done by a single mortar firing on a registration point, to make the most of the element of surprise. A range finder is very helpful for this, and should be borrowed from a machine-gun platoon if necessary. On receiving the range, the other mortar in the section will correct it for position. Fire for effect will be undertaken only after this fire for preparation, except when engaging fleeting targets or targets of considerable size. Digging-in the base plate is of great importance, especially when mortars have not undertaken fire for preparation. The possibility of danger to own troops from rounds falling short must be considered when firing mortars which have not undertaken fire for preparation.

b. By a Section

The section commander may either intrust detachment commanders with fire control or carry it out himself. In the former case, he indicates the target, or portion of the target, to detachment commanders, who carry out ranging individually and report when

they are on the target. He then orders fire for effect according to the situation. In the latter case, he either ranges both mortars himself or ranges only one of them, the detachment commander ranging the second mortar while registration is proceeding. The mortar-position noncom determines the position correction and passes the result to the second mortar.

c. By Two Sections or a Platoon

The platoon commander establishes his observation post, and details the section which is to be near him to serve as the "voice control" section. Intercommunication with the other sections is arranged. Concentration of fire of sections must be regulated both as to space and time. Sections will be allotted portions of the target, and section commanders will further distribute the fire of individual mortars. The tactical situation may make it necessary for sections to range gradually and at varying intervals. When ranging has been completed, the platoon commander will order fire for effect. The order will be passed by line, by the fire of the "voice control" section, or fire may be arranged on a time basis. The platoon commander will observe each section's fire and report corrections, but section commanders must also observe and attempt to improve their fire independently. Concentration of fire of several sections is easier if the sections are sited as close together as possible. In this case it may be possible for the ranging to be carried out by a single mortar.

Section IV. CLOSE-QUARTER FIGHTING AND WITHDRAWAL

The Battle of Primosole, which took place during the Sicilian campaign, furnishes a very good example of German tactics in close-quarter fighting and withdrawal.

The initial assault by United Nations forces was made on the morning of 15 July 1943. After bringing it to a standstill, the Germans made no attempt to defend the river line, but concentrated on holding a position in the vineyards and ditches on each side of the road, north of the bridge. This position was based on a sunken trail which ran west from the main road, about 200 yards north of the river, and which afforded concealment. Shallow trenches had been dug in the banks of the trail. The Germans also made use of ditches which ran east and west from the main road. Pillboxes in that area had been engaged by 75-mm gun fire from United Nations tanks, and for this reason were not used by the Germans.

The Germans were equipped with a very high proportion of automatic weapons, especially light machine guns. At night, light machine guns fired on fixed lines very close to the ground. The fire was coordinated

with the firing of flares. Bursts of 10 to 15 rounds were fired at a rate of about one burst every minute.

In the daytime, German machine guns were well concealed in commanding positions in ditches and along the sunken trail. Extensive use evidently was made of alternate and supplementary positions, for each machine gun appeared to fire first from one spot and then from another. Never more than two, or possibly three, machine guns were firing at any one time. This suggested the presence of a very small force, whereas in the length of the sunken trail alone (from 200 to 300 yards) the number of rifles and other weapons subsequently counted, and the number of prisoners taken, indicated that there were at least 50 to 60 men.

Individual snipers armed with light machine guns, submachine guns, or rifles were concealed in the vineyards and trees forward of, and on the flanks of, the main German position. The mission of these snipers probably was to protect the German flanks and to harass the United Nations force.

During the first part of the battle, the Germans had very few mortars. Only one is known to have fired; its fire was inaccurate and evidently not observed, perhaps because of the closeness of the fighting.

Grenade-throwing pistols and rifle grenade dischargers were used at close quarters to put down a heavy concentration of high explosive. Both types of weapons throw a high-explosive grenade approxi-

mately 20-mm in diameter. Many stick grenades and egg grenades also were used.

The Germans had four or five 88-mm guns and one or two antitank guns of small caliber, 20-mm or 37-mm. These guns were used principally to cover the main road. No attempt was made to conceal them, probably because they were brought up in great haste when the Germans discovered the presence of United Nations tanks and realized that demolition of the bridge was impossible. However, individual Germans concealed themselves in ditches by the side of the road and in culverts under the road, and engaged our tanks at close quarters with demolition charges and magnetic antitank grenades.

The German withdrawal from the defense position was accomplished at the rate of 5 to 6 miles daily. Each day the movement was made to a position previously selected. Commanding ground was the deciding factor in the choice of their positions, which afforded good fields of fire for machine guns and good observation posts for mortars. Sometimes the positions were based on natural antitank obstacles, such as river beds. Towns and villages were not used as centers of resistance, except where positions commanding a bottleneck could be obtained by the expedient of occupying houses situated on high ground. Once the Germans occupied a line of houses built on a very high ridge. A sunken road behind the houses provided good lateral communications and a covered line of withdrawal.

Patrol reports and reports from civilians indicated that the Germans usually withdrew in the early morning, between 0200 and 0400 hours, the last elements to leave often being protected by a few tanks. The type of fire which had marked German withdrawal in Africa—increased shelling and machine-gun fire at the end of the day and at intervals during the night—was not employed here.

Section V. NOTES ON GERMAN ANTITANK TACTICS

1. ANTITANK METHODS IN RUSSIA

The following observations represent an authoritative Soviet view of German antitank methods:

The German antitank defenses open up while our [Soviet] armor is moving toward the front line or when it has reached its line of departure. First, German bombers and artillery go into action to halt our attack, or at least to delay it.

The German artillery (GHQ units, divisional units, and in rare instances regimental guns) lays down a barrage about 2 miles inside our lines, and tries to smash our armor. Each German battery is assigned a frontage of about 100 to 150 yards, which it must cover. When our tanks are within 200 to 300 yards of the antitank obstacles on our side of the German main defensive area, the German guns transfer their fire to the accompanying Soviet infantry.

When our tanks are within 600 to 1,000 yards of the German main defensive area, single antitank guns (chiefly regimental) are brought into action. The main antitank strength opens up only when the range has been reduced still further, and is between 300 and 150 yards. The guns which constitute the main strength are sited principally for enfilade fire from well-camouflaged positions.

The Germans site most of their antitank weapons to the rear of the forward edge of their main defensive area. Only single guns are sited along the forward edge; their mission is to en-

gage individual tanks. As soon as an attack has been repelled, these guns change position. Antitank reserves are placed in areas most vulnerable to tank attack, especially at boundaries between units. Infantry antitank reserves consist of a platoon of antitank guns and several tank-hunting detachments, and are sometimes reinforced by infantry, field guns, and tanks.

Positions are planned for all-around defense. Two or three alternate positions are prepared for each antitank gun. Roving guns are used extensively, especially in the less vital areas. Assault guns and self-propelled antitank guns are used, not only as a mobile antitank reserve, but also as fixed weapons dug-in near the forward edge of the main defensive zone.

The main antitank weapon strength is concentrated against the flanks and rear of the attacking tanks. Gun positions are protected by antitank mines and by tank-hunting detachments. Very often, too, the Germans mine the ruts made by retreating tanks, in the hope that Soviet tanks will use them as a guide.

As the Soviet tanks reach the German main defensive line, tank-hunting detachments go into action. At this stage smoke may be used, but only if the antitank guns have ceased firing, inasmuch as smoke hinders accurate laying. When the tanks reach the German gun positions, the field guns fire over open sights.

2. ENGAGING TANKS AT CLOSE RANGE

The following order was issued by the general officer commanding the Fifteenth Panzer Division during the last days of the Tunisia fighting:

The general officer commanding the Army Group Africa desires that, as a rule, the antitank artillery engage hostile armored vehicles at ranges of not more than 800 yards, and that special attention be paid to close-range engagement of tanks by tank-hunting detachments. I repeat my instruction

that training in close-range engagement of tanks with all weapons shall be stressed. Every man in this division who knocks out a tank in close combat will receive the Assault Badge and, in addition, a special leave.

3. AN ANTITANK COMPANY LAYOUT

The following description of a German antitank company layout was provided by a prisoner of war. Since this layout would be dictated entirely by terrain factors, it should be regarded as an instance of enemy flexibility, rather than as a typical arrangement.

Platoons were in line, with their guns echeloned. Each platoon had two guns forward, about 200 yards apart, and a third gun to the rear, equidistant from the other two. The distance to the nearest gun of the adjoining platoon was about 300 yards. On each side of the gun position, there was a light machine gun, in line with the forward antitank guns and about 30 yards from the nearest neighboring gun.

Section VI. TRAINING IN A PARACHUTE MACHINE-GUN BATTALION

1. INTRODUCTION

In the summer of 1943, a German parachute machine-gun battalion issued a significant directive regarding company training. Addressed particularly to the leaders of machine-gun and mortar units, the directive is a fresh illustration of the thoroughness of German training, and also indicates the German determination to correct certain weaknesses which have been demonstrated in the past.

The directive requires that the following points be stressed in company field training:

- a. Junior officers' and noncoms' technique of issuing orders.
- b. Exploitation of terrain during the advance; camouflage.
- c. Use of snipers to support machine guns and mortars.
- d. Choice of positions by leaders of machine-gun and mortar sections.
- e. Intercommunication between squads.
- f. Expenditure of ammunition; fire discipline.
- g. Decisions taken by leaders of small units.

h. Intercommunication between squad leaders and their company officers.

It is believed that the following extract from the German training instructions, which discusses these points in some detail, will be both interesting and informative.

2. POINTS STRESSED IN TRAINING

a. When issuing orders to their men, leaders of machine-gun and mortar sections must outline the mission clearly. Lengthy discussions are to be avoided. The sequence of orders will be that in which the following examples appear:

(1) *Enemy*.—"Enemy soldiers are occupying the group of houses just ahead of us."

(2) *Intention*.—"We're going to take those houses."

(3) *Method*.—"X's machine gun will engage the enemy."

(4) *Orders to an Individual Squad*.—"X's machine-gun position will be this side of the hedge."

(5) *Flanking Units*.—"Left of the road, a patrol of the Second Company is moving forward. On the right, and to our rear, Y's mortar is following."

(6) *Position of Leader*.—"I'm going forward. The remainder of the unit will follow, keeping 50 yards behind me."

An alternate series of examples follows:

(1) *Enemy*.—"We have reason to suspect that the enemy is occupying the small settlement just ahead."

(2) *Intention*.—"We are going to find out whether there are any enemy soldiers in the village."

(3) *Method*.—"X's machine gun will move forward to the ridge and observe the entrance to the village."

(4) *Orders to a Squad*.—"X's machine-gun position will be on the ridge, from which fire can be opened at once on the entrance to the village."

(5) *Flanking Units*.—"X's machine gun will cover the advance of Section A and maintain contact with Section B. Section A is now by the ditch; Section B is 150 yards to our rear."

(6) *Position of Leader*.—"Q and Z will come with me to the ridge. When we get there, the rest of the section will follow by the same route."

The leader of a machine-gun or mortar section will always issue orders to his whole unit. He will require one of the men to repeat the order.

Preparations will always take place under the most complete cover available, and the advance will make use of all possible cover along the way, as well as of camouflage.

b. A leader, having issued his orders, will not simply dash ahead. He will lead his men, and see to it that they take up their positions properly. He can do this only by exploiting the ground, by cleverly crawling as near the enemy as possible, and by choosing positions with the utmost care. Therefore, the wise leader will advance somewhat ahead of his men, and will have them follow him by bounds.

c. Every section has a sniper. It is the sniper's mission to cover forward movement. When weapons are in position, the sniper must be slightly to one flank. The leader must give him special instructions regarding his targets and when he is to open fire. The sniper must make every round count, and must try to demoralize the enemy without revealing the position of the main weapons prematurely.

d. The leader's choice of his own position will necessarily depend upon the situation. However, he will tell his unit approximately where his position will be, and he will detail the men who are to maintain contact with him. The leader is responsible for continuous observation of his unit's sector, for preserving silence, and for maintaining the best possible camouflage.

e. Every squad leader must immediately establish contact with his nearest neighbor. This is especially important on boundaries between units.

f. The squad leader is responsible for directing and controlling the fire of his squad's mortar or machine gun. His orders will provide for the engagement of targets in the order of their importance. He will specify the quantity of ammunition to be fired. He must be strict in seeing to it that not a round too many is fired, but also that enough ammunition is employed to deal effectively with the target.

g. Rapid changes in the situation may force a leader to make his own decisions. He must have good reasons for his actions, and must instantly report his decision by messenger to his commanding officer. He must also inform neighboring units about it.

h. In action there must be constant communication between leaders and their commanding officers. Runners must be careful not to betray, by indiscreet or clumsy movements, the positions of weapons or of the commanding officer. Terrain that the opposition can observe must be avoided. Areas which are under fire, or which are commanded by hostile weapons, must be avoided or crossed at a run. Every runner must take pride in getting his message through, regardless of the circumstances.

PART THREE: UNITED NATIONS

THE UNSEEN WAR

1. WHAT THE ENEMY WANTS TO KNOW

Mere fragments of military information can be of the greatest assistance to the enemy. Often the individual items are not significant in themselves; but when they have been pieced together with other bits of information, they may disclose secrets of incalculable value to the Germans and Japanese. Items like those in the following list are constantly being sought by enemy Intelligence:

a. *Order of battle*.—Troop movements, location and strength of units. Names and personal characteristics of high officers and their staffs.

b. *Shipping*.—Sailing dates, ports of embarkation, destinations and routes of ships. Troops and cargoes carried.

c. *War Production*.—New developments, monthly totals of specific items, changes of schedule, production details at specific plants, key items and where they are produced.

d. *War Transportation*.—Bottlenecks in transportation, weak points, key centers.

e. *War Labor*.—Difficulties, stoppages, individuals sympathetic to the Axis, and labor movements which

can be used to advantage by the Axis. Workers with relatives in Axis-occupied territory.

f. *Battle Plans*.—All details of training, production, transportation and scheduling which might indicate future strategy. Conferences, trips of high officials, messages, codes, unguarded comments which might reveal plans. Marked interest by United Nations military personnel in maps of specific areas. Activities in the field which might indicate points of attack.

g. *Battle Training*.—All details. Agents to assemble these by means of personal contacts with soldiers. Location of strategic units in training. Dates of completion of training. Probable destinations.

h. *Axis Prisoners of War*.—Location, numbers, and movements. Also, details about Axis nationals under our control.

i. *Morale of troops and civilians*.—Weak points that can be exploited by means of Fifth Column work and propaganda.

j. Our casualties, losses of material.

k. Location of antiaircraft units, landing fields, fortifications, supply depots, ammunition dumps, distribution centers, and all other strategic units of defense.

2. ESPIONAGE

The system devised by the Axis for securing military information is amazingly elaborate. It goes

everywhere and makes use of everything. Anyone who can be blackmailed or bullied into furnishing information to German Intelligence is drawn into the system, whether he is a follower of the Nazi leaders or not.

A little pressure sometimes brings a non-Nazi European into line. His wife, his children, or his parents are held as hostages, and he is told about the tortures that will be inflicted upon them if he does not do what is expected of him. He is then trained for his mission and is allowed to "escape" to the United States or Latin America. Many refugees—Christians and Jews alike—from Poland, France, and the Low Countries were subjected to such pressure and sent over to the United States to secure information on specific subjects. Lists of these subjects are constantly turning up on microfilm, in code, and in information from neutral countries. Sometimes the unfortunate person who has been bullied into working for the Axis reports the whole matter to United States authorities. Recently such a man defied the Gestapo and turned over all his information to the FBI, performing a great service; through his cooperation and through the work of many American investigators, an entire Nazi spy ring was rounded up and its leaders executed.

But the use of hostages is only one method. Blackmail is another. For example, agents were dispatched to the American republics before Pearl Harbor to check on all Axis nationals, naturalized or not, who were in

trouble with the police, who had made themselves vulnerable by shady activities in the past, or who were experiencing business difficulties. Lists of these people were compiled. Some were forced to travel on Axis errands. Others were required to set up businesses which could serve as fronts for espionage. Many were placed in war plants. Others were dispatched on "professional" missions to gather facts for their masters. Although Axis spy rings are broken from time to time, they are continually being re-formed. The following is typical of questionnaires with which Berlin furnishes these agents.

INSTRUCTIONS ISSUED TO AXIS AGENTS BY GERMAN INTELLIGENCE

Information regarding the following matters is to be secured :

Order of Battle

- a. Identification of Army units located in Iceland, Greenland, Newfoundland, and at the bases leased by Britain to the United States.
- b. The composition and effectiveness of tank companies used to protect airdromes.
- c. Composition and number of all parachute units and air landing personnel. Where are these units trained?
- d. Description of all insignia. Color of uniforms. Vehicles used by all troops observed. To what units do they belong?
- e. Location of all bases where American troops are located.
- f. Composition of all large units (division or higher).
- g. Where are the headquarters? Names of commanding officers, and personal data about them? How many armored divisions?
- h. Coast defenses. All details, including land and water obstacles, antitank guns, flame throwers, artillery, and fortifications.

- i. All troop movements. Dates, routes, details of all components involved.
- j. Always indicate how the information was obtained.

Air Forces

- a. Disposition of air units.
- b. Activation of new air units.
- c. Presence, and degree of advancement, of Allied pilots in U. S. flying schools.
- d. Number (identification) and strength of antiaircraft units.
- e. Number (identification) of pilots: Army, Navy, and civilian.
- f. Number (identification) of aviation ground personnel: observers, radio-telegraphists, and mechanics.
- g. Losses of planes and aviation personnel in combat.
- h. Number of available planes of all types. Disposition.
- i. Fields used as points of departure, by U. S. Air Forces in Great Britain for bombing attacks against Germany and Northern France.
- j. Details concerning these airdromes.
- k. Position of antiaircraft batteries. Number? Types and calibers?
- l. Searchlights. How many?
- m. Signal lights for night flying.
- n. Fuel dumps. Above ground? Under ground? Types of roofing?
- o. Types and condition of runways.
- p. Repair shops. Assembly shops. How important?
- q. Number of hangars per field. What kind? Size?
- r. Is the airdrome a base for a bomber command, a fighter command, a coastal command, or units engaged in other work?
- s. Identification of each group and its squadrons.
- t. Flying schools. Locations. Courses of instruction. Number of pupils.
- u. How are barrage balloon units organized?

v. How are the antiaircraft divisions subdivided? The antiaircraft regiments? Listening stations and alarm methods.

w. Is the antiaircraft defense dependent upon the Army? Upon mobile or fixed defenses?

x. Types of planes transported from the United States. Quantities (per month or per week). Airports of arrival.

Parachutists

a. All details concerning locations of parachute units. Names of bases. What are the nearest towns? How far away?

b. To what armies are parachutists being attached?

c. Number and types of planes destined for the parachutists?

d. How long is the course of instruction?

e. Where are the parachute instruction centers located?

Convoys and Shipping

a. Itineraries of war matériel convoys.

b. Places where matériel for embarkation is concentrated.

c. All details on composition and load of convoys. Formations adopted by ships.

d. Debarkation ports in the countries for which matériel and troops are destined.

e. New embarkation and debarkation bases in the United States, on the European continent, and in Africa.

f. Bases in South America for the transportation of troops and matériel destined for Europe, Africa, and the Near East.

g. Plane bases in South America. Bases for war matériel in general.

h. New sea lanes used in transporting supplies and raw matériel from Africa and South America to the United States, and lanes used along both coasts of the American continent.

i. Results of attacks on shipping.

j. Statistics of total U. S. tonnage.

k. Means of protection employed for transports and convoys by aviation and antiaircraft units.

l. Losses of plane carriers and other units of the Navy and Merchant Marine.

m. Arrival of convoys. It is important to know in advance the time of arrival of the convoy, the nature of the load of the convoy, the names and tonnage of the ships, and the same details regarding convoys that are leaving.

n. New combat methods employed against submarines and mines.

o. Precise nature of damage to warships.

p. Effect of mines. Effect of air attacks against ports and port installations.

q. Passenger ships equipped with cranes.

r. Cold storage plants in the great ports. To what extent are these plants utilized, and what kinds of merchandise are stored?

Lend-lease Material

a. All data regarding matériel, especially the number of planes transported per month or per week. Airports of arrival. Routes traveled. New developments. Note especially any increase in quantities, or changes in specifications which might indicate use in a particular geographic area.

b. Raw material and machinery for war production.

c. All armament and ammunition, especially for aircraft.

d. Antiaircraft equipment, searchlights, all methods of detection.

e. Replacement parts for airplane motors.

f. Fuselage of planes with or without motors.

g. Points of concentration for war material to be transported to lend-lease countries.

War Industries

a. Location of naval shops, docks. Dates when units of the Navy and Merchant Marine are placed in the shops, when construction is begun, and when it presumably will be completed. Data on specifications and all equipment.

b. Location of factories serving war industries. Layouts of these factories.

c. Types of manufacture undertaken by each war plant. All available data, including monthly statistics.

d. Types of raw material most urgently required in these industries, and scarcities of essential material.

e. All developments and changes in production.

f. Conditions within factories.

g. The food situation in general. Quantities? Prices?

h. Where and in what quantities are what gases being manufactured?

i. Information about electronic production and research.

3. FIFTH COLUMN METHODS

The following methods are commonly employed in espionage. They are also used in preparing the ground for sabotage:

a. Embassies, legations, and consulates in neutral countries are utilized to control the activities of agents in general and to serve as clearing houses for information.

b. Neutral ministries in United Nations countries are often infiltrated for the same purpose.

c. Consulates of nations under Axis control are forced to report on all nationals or refugees in key United Nations cities and strategic areas. Vulnerable individuals are then blackmailed into collaborating with the Axis.

d. Agents are placed in key United Nations and neutral cities to direct Fifth Column work and to apply pressure wherever needed.

e. Bogus refugees are sent to strategic United Nations cities or to "jumping-off" points in neighboring nations, to be used in espionage.

f. Threats of reprisal are made against relatives in Axis-controlled territories to keep genuine refugees and other vulnerable individuals in line.

g. Attempts are made to plant key agents in legislative and executive agencies of United Nations governments, and on the payrolls of states and municipalities. Appointments pertaining to key services, such as transportation, police, and communications, are especially sought.

h. Attempts are made to get agents into patriotic organizations and philanthropic groups, especially those close to the armed forces.

i. Sincerely patriotic individuals are used as "fronts" and are led to indorse Axis agents.

j. Agents infiltrate into political, racial, and religious organizations, and turn them against each other.

k. Agents infiltrate into labor unions, especially communications unions. By dividing and confusing labor groups, the agents attempt to turn the balance of power to their own advantage.

l. Armed groups are established under various patriotic or social auspices.

m. Agents are placed in key overseas areas to collect information about United Nations troops and matériel, as well as to stir up discontent among local groups.

n. Whispering campaigns are started against friendly nations, especially against Great Britain. Nationalist movements are encouraged to disseminate anti-British propaganda.

o. Propaganda is spread among non-white races in the United States, especially among Negroes. The cooperation of all non-white races with the Japanese is urged for overthrow of the whites. The greater part of Japanese Fifth Column work is carried on in this field.

p. Particular use is made of social leaders, scientific men, scholars, and other prominent individuals who have emigrated from countries occupied by the enemy. Their families or their money are held under promise of release if they will work for the Axis.

q. Pacifist groups are encouraged, and bona-fide religious groups are duped into protecting them.

r. Agents infiltrate into the armed forces to spread discontent and encourage propaganda against United Nations aims.

s. Attempts are made to introduce code into radio network broadcasts.

t. Attempts are made to secure classified documents, photograph them on microfilm, and return them without arousing suspicion.

u. Attempts are made to use press cards for admission to key installations, for interviewing informed officials, and for getting into places where classified information can be picked up verbally or otherwise.

v. Attempts are made to use legitimate magazines and trade and technical publications as "fronts" for getting photographs of key installations and equipment. Violations of the Censorship Code are encouraged so as to establish precedents and to make the Code inoperative whenever possible.

w. Agents infiltrate into civilian defense and war relief agencies.

x. Subversive literature is distributed, not only among national, racial, and religious groups, but to members of the armed forces.

y. Food and gift packages are sent to promising members of the armed forces, and hospitality is offered. Efforts are made to dupe the recipients into revealing information. When service men and women voice slight grievances, every effort is made to encourage and magnify these complaints so that discontent will spread.

4. LOOSE TALK

Unguarded conversation takes place everywhere, but especially in bars, cafes, restaurants, dance halls, barber shops, beauty parlors, hotels, railway stations, and public conveyances. There is a great deal of it in the family circle, especially when men and women of the armed forces are home on furlough. It takes place wherever people relax and give in to the human temptation to show off, to gossip, or to pass on an interesting item just for the sake of relieving boredom.

Ernest Lehmitz, the Staten Island air-raid warden who sold military secrets to Germany, made full use of our American weakness of talking too freely to people we like. He patronized bars and restaurants where soldiers, sailors, and war workers gathered. Lehmitz went into as many as five or six such places a day. Incidentally, he worked in a restaurant himself, as many agents do. He was regarded by his neighbors as an upright and patriotic American citizen. The best Axis agents usually are so regarded, not only because our innate sense of fair play often causes us to lean over backwards in giving naturalized citizens the benefit of the doubt, but also because they appear to be exemplary individuals. Naturally, they pretend to be violently anti-Axis.

From their vantage points in war factories, in shipyards, in the armed forces, and elsewhere, undiscovered enemy agents are in a good position to profit from the indiscretions, the mistakes, and the friendly trustfulness of others. They are pleasant fellows in bars, generous at setting up the drinks for soldiers home on leave and for dockworkers wanting a little amusement after hours. They like to talk to workers in war plants, or to trusting clerks on a night out. They ask harmless-sounding questions, after telling interesting things themselves. Some of these agents are inducted into the Army in the natural course of events. Careless talk among soldiers and officers is particularly undesirable, not only because agents often

succeed in wearing the uniform for an appreciable period, but because members of the armed forces have constant access to vital information. The example they set in guarding it is of the greatest importance. One of the most frequent comments made by civilians on the subject of loose talk is that men in uniform are guilty of most of it. The moral is obvious.



Carl H. H. H.